Operation/Reference Guide

UDM-1604

Endeleo Multi-Format Distribution Hub

Endeleo Distributed Media

Last Updated: 1/24/2008

AMX Limited Warranty and Disclaimer

All products returned to AMX require a Return Material Authorization (RMA) number. The RMA number is obtained from the AMX RMA Department. The RMA number must be clearly marked on the outside of each box. The RMA is valid for a 30-day period. After the 30-day period the RMA will be cancelled. Any shipments received not consistent with the RMA, or after the RMA is cancelled, will be refused. AMX is not responsible for products returned without a valid RMA number.

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- The AMX Authorized Partner must contact AMX Technical Support to validate the failure before pursuing this service.
- AMX will complete the repair and ship the product within five (5) business days after receipt of the product by AMX. The AMX Authorized Partner will be notified if repair cannot be completed within five (5) business days.
- Products repaired will carry a ninety (90) day warranty or the balance of the remaining warranty, whichever is greater.
- Products that are returned and exhibit signs of damage or unauthorized use will be processed under the Non-Warranty Repair Policy.
- AMX will continue to provide Warranty Repair Services for products discontinued or replaced by a Product Discontinuance Notice.

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- The AMX Authorized Partner must contact AMX Technical Support to validate the failure before pursuing this service.
- Non-warranty repair is a billable service.
- Products repaired under this policy will carry a ninety (90) day warranty on material and labor.
- AMX will notify the AMX Authorized Partner with the cost of repair, if cost is greater than the Standard Repair Fee, within five (5) days of receipt.
- The AMX Authorized Partner must provide a Purchase Order or credit card number within five (5) days of notification, or the product will be returned to the AMX Authorized Partner.
- The AMX Authorized Partner will be responsible for in-bound and out-bound freight expenses.
- Products will be repaired within ten (10) business days after AMX Authorized Partner approval is obtained.
- Non-repairable products will be returned to the AMX Authorized Partner with an explanation.
- See AMX Non-Warranty Repair Price List for minimum and Standard Repair Fees and policies.

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Important Safety Markings

Markings Used In This Manual

The following symbols are used on the UDM hardware and throughout this Installation Guide to advise you of important instructions. All maintenance must be carried out by an AMX trained and qualified installer.

Voltage

This symbol (FIG. 1) warns the presence of a voltage of sufficient magnitude to cause a severe or fatal electric shock. Follow the appropriate instructions carefully to avoid the risk of injury.

FIG. 1 Voltage symbol

There are NO user serviceable parts within the UDM-0102 or UDM-RX02.

Rating Label

The rating label, containing important safety information, is found on the underside of the UDM-0102 and UDM-RX02. Symbols used on this label are explained below;

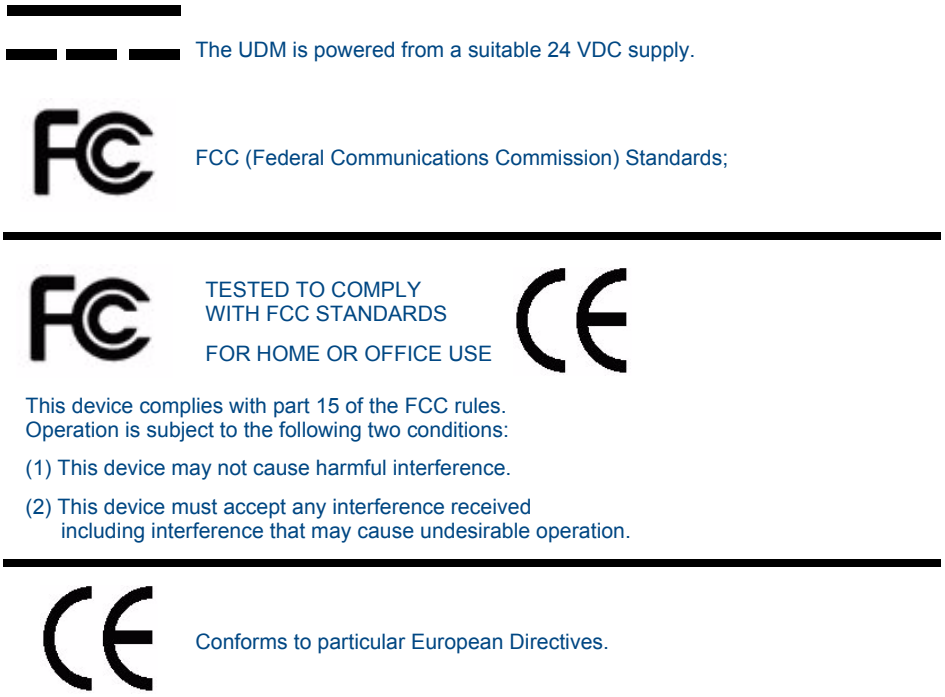
The UDM is powered from a suitable 24 VDC supply.
FCC (Federal Communications Commission) Standards;
TESTED TO COMPLY
WITH FCC STANDARDS
FOR HOME OR OFFICE USE
This device complies with part 15 of the FCC rules.
Operation is subject to the following two conditions:
(1) This device may not cause harmful interference.
(2) This device must accept any interference received
including interference that may cause undesirable operation.
Conforms to particular European Directives.

FIG. 2 Rating Label

Important Instructions

WARNING

This symbol, used within this manual, indicates an important instruction for the correct and safe installation, operation or maintenance of your UDM-0102 and UDM-RX02.
Failure to comply with such instruction may result in injury to person or damage to the UDM hardware.

Compliance

FCC and IEC

Compliance with FCC and IEC standards are found within the rating label; see above.

Date of Manufacture

For US customers, the date of manufacture is also found underneath the UDM-0102 and UDM-RX02.

FIG. 3 Date Of Manufacture Sticker (on bottom panel)

UDM-0102/RX02 Date of Manufacture Sticker	
Model Number	Model number and designation, comprised of up to seven characters.
Vendor ID	One- or two-character ID code.
Date Code	Three-digit date code, comprised of week of year (1-52) and last digit of year.
Consecutive number	Starting at “0001” and continuing to “9999”.

Environmental Conditions

The criteria on this page must be observed for the installation of the UDM-0102 and UDM-RX02.

Temperature

DO NOT install or operate the UDM-0102 or UDM-RX02 in an area where the ambient temperature exceeds 35ºC (95ºF) or falls below 5ºC (35ºF).

Humidity

DO NOT install or operate the UDM-0102 or UDM-RX02 in an area in which the ambient relative humidity exceeds 85% or an area that is prone to condensation.

Water / Liquids

DO NOT install or operate the UDM-0102 or UDM-RX02 near water or in a location which may be prone to water seepage, dripping or splashing.

DO NOT place objects containing liquids on the appliance.

The hub is not waterproof.

External use

DO NOT operate the UDM-0102 or UDM-RX02 outdoors.

UDM-1604 Multi-Format Distribution Hub

Overview

The UDM-1604 Endeleo Multi-format Distribution Hub (FG-UDM-1604) delivers any video source, including Component, RGB, VGA and S-Video to a virtually unlimited number of display devices (FIG. 1).

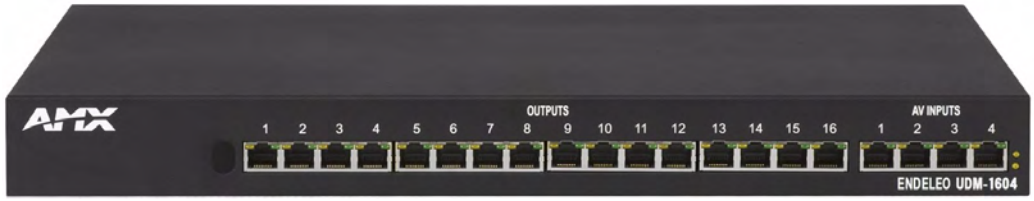

FIG. 1 UDM-1604

The UDM-1604 supports four high-resolution input ports and 16 UDM output ports.

The UDM-1604 delivers media over easily-installed, dedicated Cat5/5e/6, which de-couples distribution of the media from the corporate backbone. Users can quickly switch and transmit any video source to the display device, power on/off display devices, and permission user control to select and play video sources and media servers on demand.

The UDM-1604 offers four high-resolution input ports on the back of each unit. Additional Composite video inputs (RJ-45 located on the front) enable the connection of four interconnects from a TVM-1600 Managed TV Distribution Hub or four Composite video sources using approved Video over UTP extenders.

In total, the UDM-1604 system can distribute any combination of the following: four RGBHV sources, four Component video sources, four S-Video sources or 12 Composite video sources.

Source inputs to the UDM are industry standard VGA, Composite, Component or S-Video feed, and output is presented as an RJ45 port for connection to Cat5, 5e or 6 twisted-pair Ethernet cable.

Video inputs are connected via the HD15 Input connector on the rear of the UDM. Adapters are used to bring the different types of video source into the UDM. See the *Audio & Video Formats/Resolutions/ Distance* section on page 12 for tested and confirmed distances.

Each UDM has an Ethernet network port to provide connectivity to a central management system, or can be controlled by the onboard configuration pages. A Serial connection is also provided for CLI administration and diagnostic purposes.

Features

- 4 multi-format inputs (plus 4 CVBS inputs) x 16 outputs
- Digital audio support
- Central device control
- Compatible with TVM-1600
- 1U rack-mounting
- Multiple Hubs can be cascaded to support higher number of outputs

Compatibility

The UDM-1604 is compatible for use with the UDM-RX01 (FG-UDM-RX01) receiver.

Product Specifications

UDM-1604 Specifications	
Power Requirements:	• 90-264V AC, 50/60Hz • Max power consumption: 130W
Front Panel Components	
IR Sensor:	Infrared receive port (IRRX) for learning IR remote control functions from IR controlled devices.
Outputs:	16 RJ-45 ports for connection to Endeleo TVM hubs (via Cat5, Cat5e or Cat6).
A/V Inputs:	4 RJ-45 ports for connection from Endeleo TVM hubs (via Cat5, Cat5e or Cat6).
Rear Panel Components	
Network Port:	RJ-12 10 BaseT network port is provides network connectivity.
Serial Port:	RJ-12 port allows an administrator to control various functions from a command line prompt.
IRTX Ports:	2 Infrared Transmit (IRTX) ports allow the UDM hub to control IR devices via IR emitters attached to the UDM. The IR cable is attached to the IR panel of the controlled device to receive IR commands issued through the software or remote control.
Input Connectors (A-D):	4 sets of Input connections for up to 4 A/V inputs with the following connectors: • Video • Audio Left • Audio Right • SPDIF
Cascade IN/OUT Ports:	These ports allow UDM Hubs to be cascaded together. • Cascade In Port (from another UDM Hub) • Cascade Out Port (to another UDM Hub)
IEC Power Connector:	Universal switch-mode power supply. • As a Class 1 appliance the Hub should be connected to a mains supply with a protective earthing connection. • The Power On/Off switch is located beside the IEC power connector. ***Note**: The rating label found to the bottom left of the hub, beneath the IEC connector, contains important information applicable to the Hub's installation environment.*
Network Interface:	10baseT
Serial Interface:	9600, 8, N, 1
Max Video Input:	• 4 x RGBHV (or) • 4 x S-Video (or) • 12 x CVBS (plus) • 4 x Endeleo TVM-1600 or CVBS
Operating Environment:	• 35°F - 95°F (5°C - 35°C) • Max. relative humidity - 85% (non-condensing)
Dimensions (HWD):	1 3/4" x 19" x 12 1/2" (45 mm x 440 mm x 320 mm)
Weight:	8.8 lb. (4 Kg)
Certifications:	• CE/UL/FCC part 15 Class A

UDM-1604 Specifications	
Included Accessories:	• IEC power cord • 19" mounting brackets • RS-232 DB-9/RJ-12 connection cable ***Note**: No A/V interface cables supplied*
Other AMX Equipment:	• HD15 to S-Video Cable (FG-UDM-SVID01) • HD15 to 3x RCA Breakout Cable (FG-HD15RCA3F) • RS232 DB9/RJ12 Connection Cable (FG-RS01) • UDM-RX01 Multi-Format Receiver (FG-UDM-RX01) • UDM-RC10 IR Engineering Remote Control (FG-UDM-RC10) • IR01 IR Emitter Module (FG-IR01) • IR03 External IR Receiver Module (FG-IR03)

Installation

Overview

The UDM-1604 occupies a single rack space in a standard 19" equipment rack. Rack mounting brackets and screws are located in the accessories box supplied with the UDM-1604.

WARNING

Exercise extreme care when lifting or moving the hub within the rack to avoid injury. It is recommended that you seek the assistance of another person when rack mounting the UDM-1604.

Rack mounting brackets and screws are located in the accessories box supplied with the UDM-1604.

1. Attach the rack mounting brackets to each side of the UDM-1604 using four M4 screws for each bracket (FIG. 2).

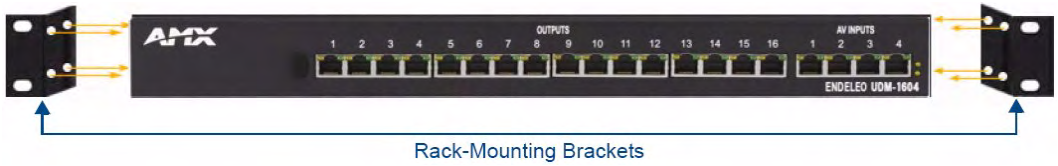

FIG. 2 Attach the mounting brackets to each side of the Hub

WARNING

To prevent injury the Hub must be securely attached to the rack in accordance with the installation instructions.
ALWAYS use the special rack mount brackets supplied and high quality fixing screws to ensure the hub is installed in the rack correctly.

2. Place the UDM-1604 in the Rack and hold steady.
3. Two fixing holes are supplied on each side of the UDM-1604. Screw the hub into the rack using the fixing holes (FIG. 3).

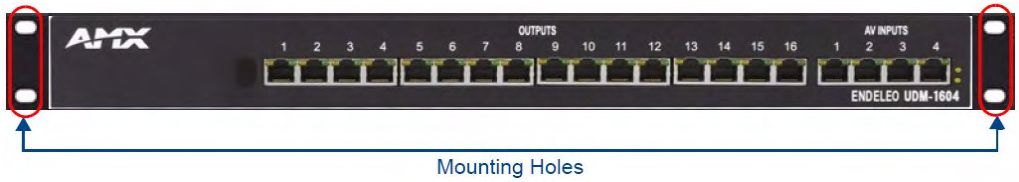

FIG. 3 Screw the hub into the rack using the fixing holes

WARNING

DO NOT stand other units directly on top of the hub when it is rack mounted, as this will place excessive strain on the mounting brackets.

Ventilation

ALWAYS ensure that the rack enclosure is adequately ventilated.

Sufficient airflow must be achieved (by convection or forced-air cooling) to satisfy the ventilation requirements of all the items of equipment installed within the rack.

Wiring and Connections

UDM-1604 Front Panel Components

The components on the front panel of the UDM-1604 are described below (FIG. 4).

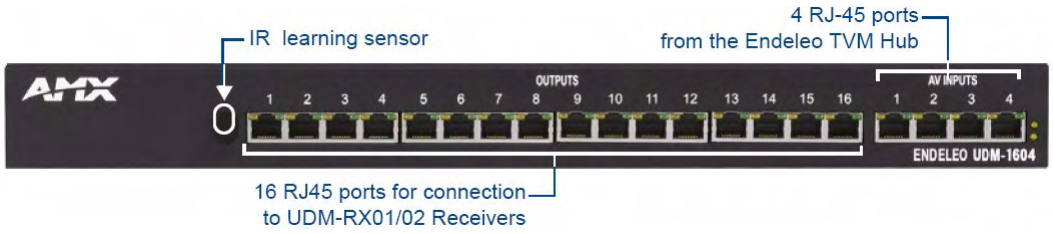
IR learning sensor
4 RJ-45 ports
from the Endeleo TVM Hub
OUTPUTS
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16
AV INPUTS
1 2 3 4
ENDELEO UDM-1604
16 RJ45 ports for connection
to UDM-RX01/02 Receivers

FIG. 4 UDM-1604 - Front Panel Components

IR Learning Sensor

An IR receive port is found at the front of the UDM Hub to the right hand side. This is used to learn device IR remote control functions from devices such as DVD players, VCRs etc. Common functions learned include Power on, Power off, Play, Pause, Stop, etc.

Refer to the *Protocols and IR Learning* section on page 31 for details.

OUTPUT Ports (RJ-45)

The 16 RJ-45 ports on the front panel of the UDM (labelled "OUTPUTS") provide connectivity to UDM-RX01 or UDM-RX02 Multi-Format Receivers. This is a standard RJ-45 connector, and UDM Receivers can be connected via either Cat5, Cat5e or Cat6 cabling (FIG. 5).

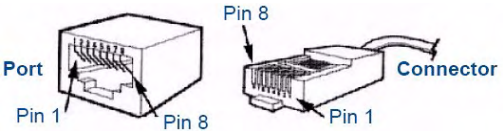

FIG. 5 RJ-45 Pinouts

UDM Port Pinouts

The following table describes the pinout configuration of the UDM port:

UDM Port Pinouts				
Pair	**Color**	**RJ45 Pin**	**Polarity**	**Endeleo Function**
1	White / Blue	5	-	Green
	Blue	4	+	
2	White / Orange	1	+	Red
	Orange	2	-	
3	White / Green	3	+	Blue
	Green	6	-	
4	White / Brown	7	+	Bi-Directional Control, Digital Audio, Phantom Power
	Brown	8	-, Gnd	

UDM Port Transmission Details

The following table provides transmission details for the UDM port:

Transmission on UDM Port					
Pair	**Pin**	**UDM (CVBS)**	**UDM (SVideo)**	**UDM (YPbPr)**	**UDM (RGB)**
1	1	CVBS +	Luma +	Y+	Red +
1	2	CVBS -	Luma -	Y-	Red -
2	3		Chroma +	Pr+	Blue+
3	4			Pb+	Green +
3	5			Pb-	Green -
2	6		Chroma -	Pr-	Blue -
4	7	Power, Data, Audio	Power, Data, Audio	Power, Data, Audio	Power, Data, Audio
4	8	Power, Data, Audio	Power, Data, Audio	Power, Data, Audio	Power, Data, Audio

An incorrectly terminated cable will result in the following scenarios:

Incorrectly terminated cable results					
Pair	**Composite Video**	**SVideo**	**Component Video**	**RGBHV Video**	**User Port LINK LED**
1	No Video 1	No Luma	No Y	No RED	LIT
2	No Video 3	No Chroma	No Pr	No BLUE	LIT
3	No Video 2	NONE	No Pb NONE	No GREEN NONE	LIT NONE
4					

UDM-1604 Rear Panel Components

FIG. 6 shows the components on the rear panel of the UDM-1604:

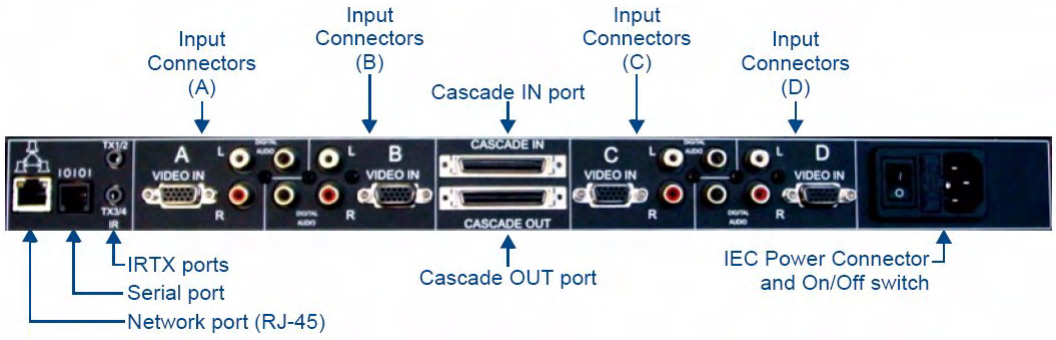

FIG. 6 UDM-1604 - rear panel components

Network Port (RJ45)

The RJ45 Network port on the rear panel of the UDM-1604 provides 10 BaseT network connectivity.

Pinout Configuration

The following table lists the pinouts, signals, and pairing for the Network port.

RJ45 Network Port Pinouts and Signals				
Pin	**Signals**	**Connections**	**Pairing**	**Color**
1	TX +	1 --------- 1	1 --------- 2	Orange-White
2	TX -	2 --------- 2		Orange
3	RX +	3 --------- 3	3 --------- 6	Green-White
4	no connection	4 --------- 4		Blue
5	no connection	5 --------- 5		Blue-White
6	RX -	6 --------- 6		Green
7	no connection	7 --------- 7		Brown-White
8	no connection	8 --------- 8		Brown

FIG. 7 diagrams the pinouts and signals for the Network RJ45 connector and cable.

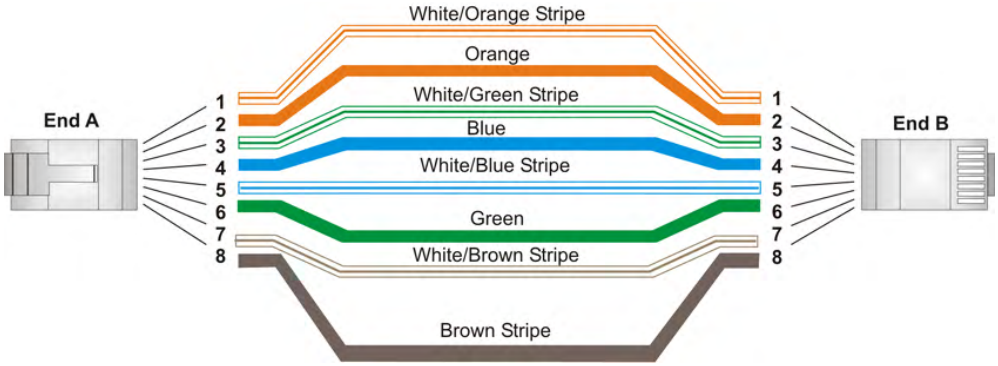

FIG. 7 RJ45 wiring diagram

NOTE

*Consult the Network Administrator for correct cabling from the UDM-1604 onto the network. For remote connectivity, the Firewall may have to be configured to open port **2008** for remote connectivity over UDP*

Default IP Address

The default IP address of the UDM-1604 is **192.168.0.96**.

Once the UDM-1604 is switched on, use the *Setup* option in the UDM WebConsole to configure the Hub's correct IP address (see the *Setup Page* section on page 38).

The IP address may also be configured via the serial port (refer to the *Backend Commands* section on page 62).

Serial Port

The Serial port on the rear panel (labelled "**10101**") is available for diagnostic and troubleshooting purposes.

Connecting the Serial port on the UDM-0102 is not an essential step in the installation process.

The Serial port on the UDM-1604is an RJ12 connector, and requires a DB9-to-RJ12 adapter cable (FG-RS01) to connect to a PC for Terminal control.

Serial Port - Default Communication Settings

Use hyper terminal with default serial settings to communicate with the UDM-1604 (and UDM-RX01):

Default Serial Settings	
Baud Rate:	9600
Data Bits:	8
Parity:	None
Stop Bits:	1
Flow Control:	None

DB9-to-RJ12 Adapter Cable Pinouts

The following table provides the pinout configuration for the DB9-to-RJ12 adapter cable:

DB9-to-RJ12 Adapter Cable Pinouts			
DB9 connector	**Function**	**Abbreviation**	**RJ12 connector**
Pin 1	Not used	NC	
Pin 2	Transmit Data	TD or TX or TXD	Pin 1
Pin 3	Receive Data	RD or RX or RXD	Pin 2
Pin 4	Data Set Ready	DSR	Pin 3
Pin 5	Signal Ground	GND	Pin 4
Pin 6	Data Terminal Ready	DTR	Pin 5
Pin 7	Not Used	NC	Pin 6
Pin 8	Not Used	NC	
Pin 9	Not Used	NC	

IRTX (IR Transmit) Ports

Two 3.5mm stereo IRTX connections issue IR commands from the UDM hub to the controlled device(s):

- TX1 – Transmits IR commands to Device 1
- TX2 – Transmits IR commands to Device 2

A maximum of two IR devices (such as DVD players or VCRs) can be connected to the UDM via the IRTX ports on the rear panel (FIG. 8), and controlled via the WebConsole or remote control.

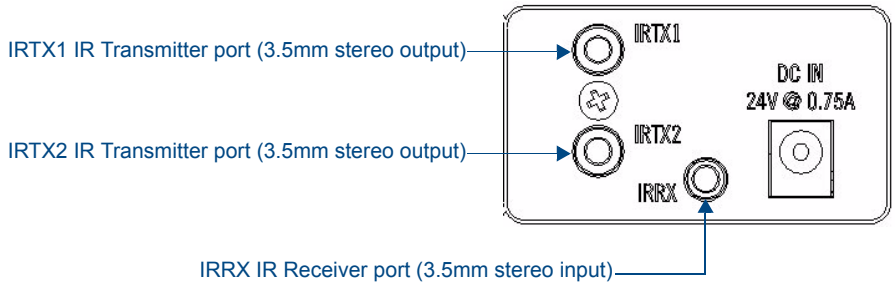

FIG. 8 IR Transmit/Receive Ports

NOTE

IR devices controlled via the IRTX ports are typically installed within the same equipment rack as the UDM.

Connecting an IR Device to an IRTX Port

To issue IR commands to the display device such as power on or power off, an IR01 Endeleo IR Emitter Module (FG-IR01) is needed:

FIG. 9 IR01 Endeleo IR Emitter Module

NOTE

Ensure the position of the device corresponds to the position assigned in the Devices option of the UDM-0102's WebConsole.

1. Connect the IR Emitter Module cable to the appropriate **IRTX** port on the UDM-0102.
2. Run the other end of the cable to the display device, and attach the IR Emitter over the device's IR sensor by removing the cover on the reverse side of the IR Emitter.
3. The UDM-0102 is now capable of issuing IR commands to the display device.

IR commands for each device on the system have to be learned by the UDM-0102 in order to function properly. Refer to the *Protocols and IR Learning* section on page 49 on how to learn a device's IR commands.

A/V Source Input Connectors

There are four sets of input connectors to the rear panel of the UDM-1604, labelled A, B, C and D (FIG. 10).

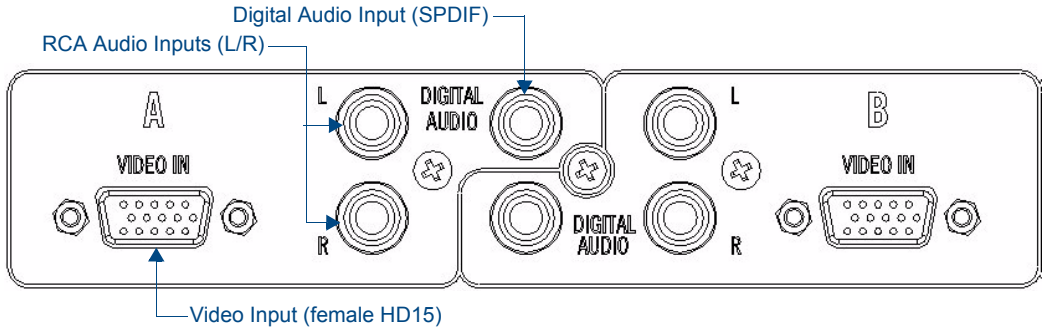

FIG. 10 A/V Source Input connectors (A and B shown)

Audio & Video Formats/Resolutions/Distance

The following table provides recommended maximum distances for cable runs, based on video class type at various resolutions:

Audio & Video Formats/Resolutions/Distance				
Class	**Format**	**Name**	**Distance (m)**	**Distance (ft.)**
Composite	720x480	NTSC	300	1000
	720x756	PAL	300	1000
Component	720x480	480p	300	1000
	720x756	576p	300	1000
	1280x720	720p	200	650
	1920x1080	1080i	150	500
	1920x1080	1080p	120	400
VGA	640x480	VGA	200	650
	800x600	SVGA	200	650
	1024x768	XGA	200	650
	1280x1024	SXGA	150	500
	1600x1200	UXGA	120	400

It is important to note that the maximum distances indicated above are not absolute, but are recommended distances that have been tested to deliver video at the specified resolutions, without significant signal degradation. In particular, lower resolutions (640 x 480, 720 x 480 and 800 x 600) can often be delivered significantly further than what is indicated in the table.

Several factors affect the overall quality of the displayed video, including the quality of the twisted pair cable and connectors used, the nature of the video image itself, as well as the particulars of the installation and how the video is displayed and viewed.

Two major factors affect the quality of signal transmission include:

- **Cable Distance**: Naturally, long distances cable runs (in excess of 300 meters/1000 feet) are always subject to resistance and capacitance losses which can negatively impact the quality of the image.
- **Skew**: "Skew" represents the slight delay that results from the variation in wiring lengths for each of the twisted pairs. The effects of skew on A/V signals increases with cable length. Excessive skew can adversely affect video image quality, especially at long cable lengths and high signal resolutions.

UDM Hubs allow you to compensate brightness, sharpness and skew delay via options in the *Status* page of the UDM's built-in WebConsole (see the *Video Compensation* section on page 21).

VIDEO IN Connectors (HD15)

FIG. 11 provides the pin layout for the VIDEO IN HD15 Connectors:

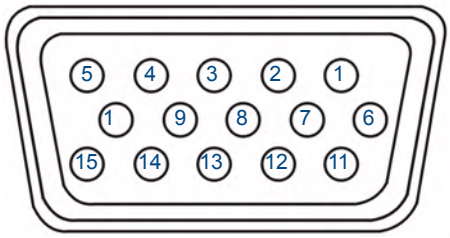

FIG. 11 VIDEO IN HD15 Connector

The table below describes the pinout configuration on the VIDEO IN HD15 connector for VGA, Component, S-Video and Composite connections:

VIDEO IN HD15 Pinout Configuration				
Input Pin	**VGA**	**Component**	**S-Video**	**Composite**
1	Red	Y	Luminance	CVBS1
6	Red - Ground	Y - Ground	Luminance - Ground	CVBS1 Ground
2	Green	Pb	-	CVBS2
7	Green - Ground	Pb - Ground	-	CVBS2 Ground
3	Blue	Pr	Chrominance	CVBS3
8	Blue - Ground	Pr - Ground	Chrominance - Ground	CVBS3 Ground
13	Horizontal Sync	-	-	-
14	Vertical Sync	-	-	-

NOTE

*The **UDM-HD15RCA3F** Endeleo HD15 to 3x RCA Breakout Cable (FG-HD15RCA3F) referenced in the table above is different from a standard RCA cable, and an RCA cable cannot be used in its place (the Y, Pb, and Pr connections are shifted from the VESA standard). If a standard cable is to be used, you will have to swap the connectors. Contact AMX Technical Support for details.*

Connecting a VGA Video Input

1. Connect one end of a VGA cable to the source device's VGA output port.
2. Attach the other end of the cable to the appropriate VIDEO IN connection (A or B) on the UDM. For example, connect to the Video In connection on Input A of the Hub.
3. Connect any audio to the analog (RCA) audio connectors or digital (SPDIF) connector.

NOTE

Ensure Input A is configured as a "VGA Input" and named appropriately within the "Inputs" section of the UDM's built-in WebConsole. Also ensure the correct Audio Type (Analog L/R or S/PDIF) is selected for the relevant input. Refer to the Configuration section on page 21 *for details.*

Connecting a Composite Video Input

1. Connect the UDM-HD15RCA3F Breakout Cable (FG-HD15RCA3F, not included) to the source device's Composite output ports:
   - A1 = red RCA
   - A2 = green RCA
   - A3 = blue RCA
2. Attach the other end of the cable to the appropriate VIDEO IN connection (A or B) on the UDM.
3. Connect any audio to the analog (RCA) audio connectors or digital (SPDIF) connector.

Connecting a Component Video Input

1. Connect the UDM-HD15RCA3F Breakout Cable (FG-HD15RCA3F, not included) to the video source device's Component video output connectors (Red, Green and Blue).
2. Attach the other end of the cable to the appropriate VIDEO IN connection (A or B) on the UDM.
3. Connect any audio to the analog (RCA) audio connectors or digital (SPDIF) connector.

Connecting an S-Video Input

1. Connect the UDM-SVID01 HD15 to SVideo cable (FG-UDM-SVID01, not included) to the video source's S-Video connection.
2. Attach the other end of the cable to the appropriate VIDEO IN connection (A or B) on the UDM.
3. Connect any audio to the analog (RCA) audio connectors or digital (SPDIF) connector.

Cascade IN/OUT Ports

The Cascade IN and Cascade Out ports allow UDM Hubs to be chained together to increase the number of inputs which can be delivered to the end points (FIG. 12). This is known as "cascading" the hubs.

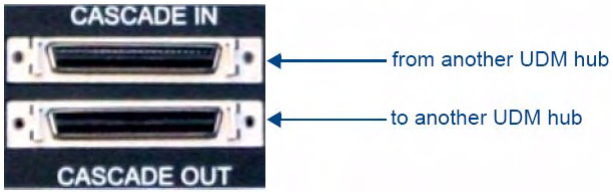

FIG. 12 Cascade IN/OUT Ports

- The Cascade In and Cascade Out ports are used to cascade two UDM hubs.
- A UDM-EXP-01 cascade cable (optional) is required to connect the UDM hubs together.

Refer to the *Cascading Hubs* section on page 49 for details on configuring cascaded Hubs.

IEC Power Connector

The UDM-1604 uses a universal switch-mode power supply, which operates from 90-264V AC, 50/60Hz, with a power consumption of 130W fully loaded.

- The rating label found to the bottom left of the hub, beneath the IEC connector, contains important information applicable to the Hub's installation environment.
- The Power On/Off switch is located beside the IEC power connector.

As a Class 1 appliance the UDM-1604 should be connected to a mains supply with a protective earthing connection.

Powering the UDM-1604 Hub On

1. Ensure a standard PC mains lead has been connected to the 3-pin power connection, and then connected to a mains power source.
2. Flip the power switch down to its On (I) position.

Powering the UDM-1604 Hub Off

Where a mains plug (or appliance coupler) is used in the event of a fault, the hub can be disconnected from the mains by removing the lead from the IEC inlet or from the mains socket.
It is important that the hub is installed in such a way that this method remains readily operable.
The user should have easy access to either the IEC inlet or the mains socket in the event of a fault.

To turn the UDM-1604 off, flip the Power switch to it's Off (0) position.

Hub Configuration

Connecting to the Multi Format Video Hub

1. The default IP address of the UDM-1604 Hub is **192.168.0.96**.
2. Enter the IP address into the address field within a browser window (FIG. 13).

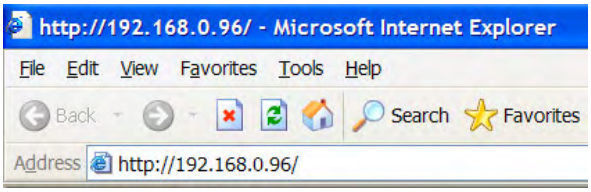

FIG. 13 Default IP address of the Multi Format Video Hub

Hub Login

1. Upon connection to the hub authentication (username and password) is required (FIG. 14).

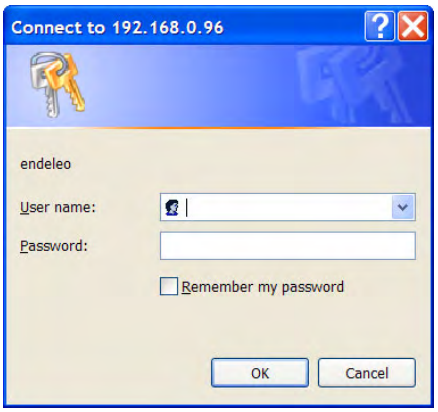

FIG. 14 Endeleo Login screen

2. The username should be left blank.
3. The password is *admin*.

NOTE

The password is case sensitive.

4. On initial connection the hub **Status** page is displayed.

Configuring the Hub

Each Hub can be configured for the correct network environment. It is also possible to configure each Hub for the correct date and time.

Network configuration

Hubs can be configured for the network environment using the *Setup* page.

1. Click on the **Setup** option to the left of the screen.
2. The following Hub options should be configured from this page (FIG. 15):

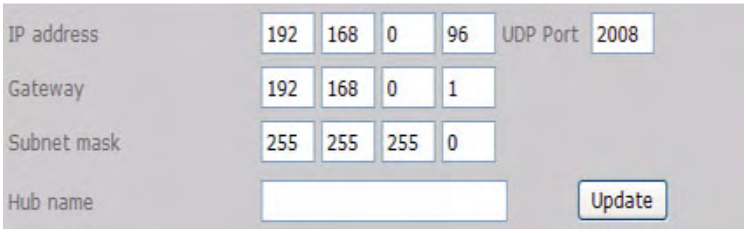

FIG. 15 The Setup Page

   a. Hub IP Address, Subnet Mask and Default Gateway;
   b. UDP Port (default is 2008) and
   c. Hub name (maximum of 30 characters).

NOTE

The UDM1604 does not support DHCP. Please configure a static IP Address.

3. Once the network environment has been configured, click on **Update**.

NOTE

All changes are immediate - once the IP address of the hub has been changed redirect the web browser to the changed address.

Date and Time configuration

The Setup page is also used to set up the hub *date* and *time*, which is used for scheduling.

1. To configure the Hub's Date and Time, ensure the *Setup* page is displayed.
2. Configure the Hub by typing in the correct values for the **Time** and **Date**.
3. Click on **Update** when all configuration changes have been completed.

Checking the Hub Time

Clicking on the date and time on the screen simply refreshes the clock to the current time. This can be useful before creating a scheduled event (FIG. 16).

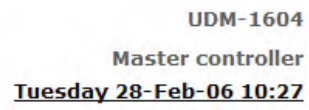

FIG. 16 Hub Date and Time

Restoring Hub Configuration and Connections

To ensure the configuration settings for the Hub are retained each time the hub boots it is advisable to ensure the following options have been enabled.

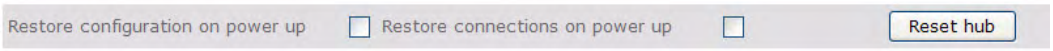

FIG. 17 Restoring configuration on power up

WARNING

Failure to select the Restore Configuration and Connection options will mean if the Hub is reset the Hub configuration and connections will need to be re-configured.

Restoring configuration and connections

To ensure network configuration and port configuration are restored on boot up select the Restore configuration on power up.

1. Select the *Setup* option from the options available.
2. Ensure the checkbox beside **Restore configuration on power up** has been selected (FIG. 17).

Restoring connections on power up

To ensure inputs are transmitted to the outputs (or ports) on boot up select the Restore connections on power up.

1. Select the *Setup* option from the options available.
2. Ensure the checkbox beside **Restore connections on power up** has been selected.

Hub Reset

Where appropriate the Hub can be reset from the Browser interface. Use the *Setup* option to reset the Hub.

1. To reset the Hub click on the **Setup** option from the left side of the screen.
2. Towards the bottom of the Setup screen the *Hub Reset* button will be visible (FIG. 17).
3. Click the **Hub reset** button to reset the hub. The Hub's network connection will be lost temporarily and video displays will switch off then on again very quickly.

WARNING

A power down of the Hub should now be performed to complete the reset procedure.

Input Configuration

The second stage in configuring a Hub is to set up the video types and audio sources being presented to each input port and where appropriate renaming these. This is all achieved through the *Inputs* page.

Configuring Inputs A-D

1. Select the **Inputs** option from the available options to the left of screen. The main Inputs screen is displayed (FIG. 18).

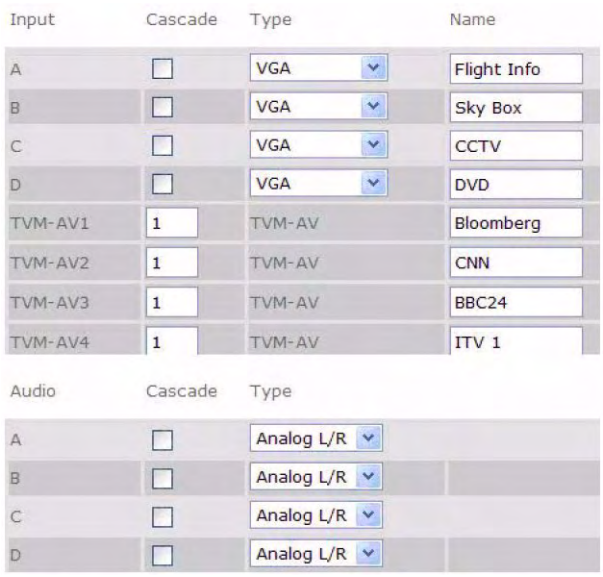

FIG. 18 Input configuration page

2. An input port can be set to accept (a) a *local* source or (b) the equivalent source from the *previous hub* in a cascaded system (*Cascade* option enabled).
3. Select the appropriate **Input Type**. For RGB, VGA, Component or SVideo inputs, only one connection is possible per input port (FIG. 19).

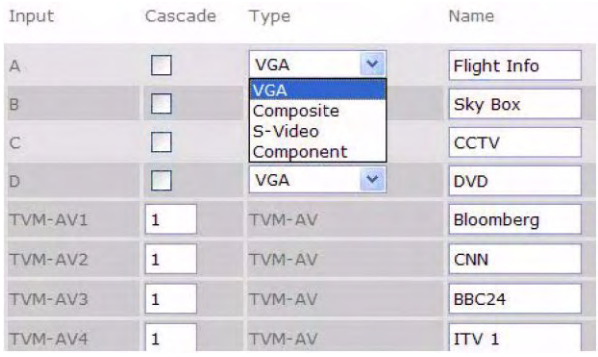

FIG. 19 Input configuration page - Selecting the Input Type

4. Name the **Input Type** appropriately.

5. If the **Input Type** is *Composite*, then the screen will refresh and enable the administrator to name each of the 3 available composite sources separately (FIG. 20).

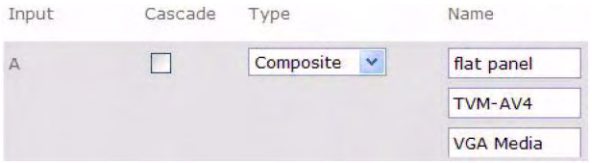

FIG. 20 Possible Composite Video sources

6. **Name** the Composite Video types appropriately.

Configuring TVM (AV) Inputs

TV Inputs from an Endeleo TVM hub can also be fed into the UDM hub for display at screens throughout the location.

WARNING

The power at the relevant TVM port will have to be disabled using the <k> <port no> command or through the TVM Web Browser before being connected to a UDM Hub. Refer to the TVM1600 User Guide.

Configuring TVM inputs for a UDM Hub

1. Ensure the port on the TVM is configured to display the correct channel – refer to the TVM documentation.
2. Ensure the power on the TVM port which will transmit the TV feed has been switched off using the **[k] [port no]** command (or using the Web Browser).
3. Connect a Cat5 cable from the TVM port to the relevant TVM port on the front of the UDM hub (FIG. 21).

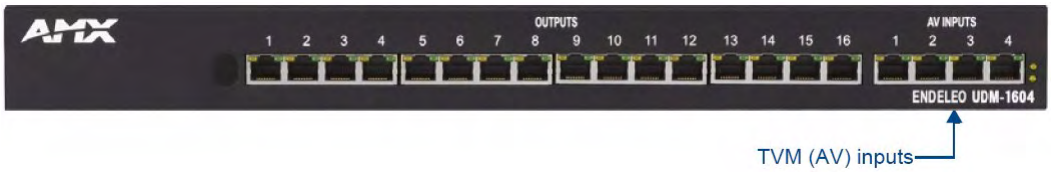

FIG. 21 TVM (AV) inputs

4. Click on the **Inputs** option and in the Inputs section configure the TVM input - **Name** the port accordingly (FIG. 22).

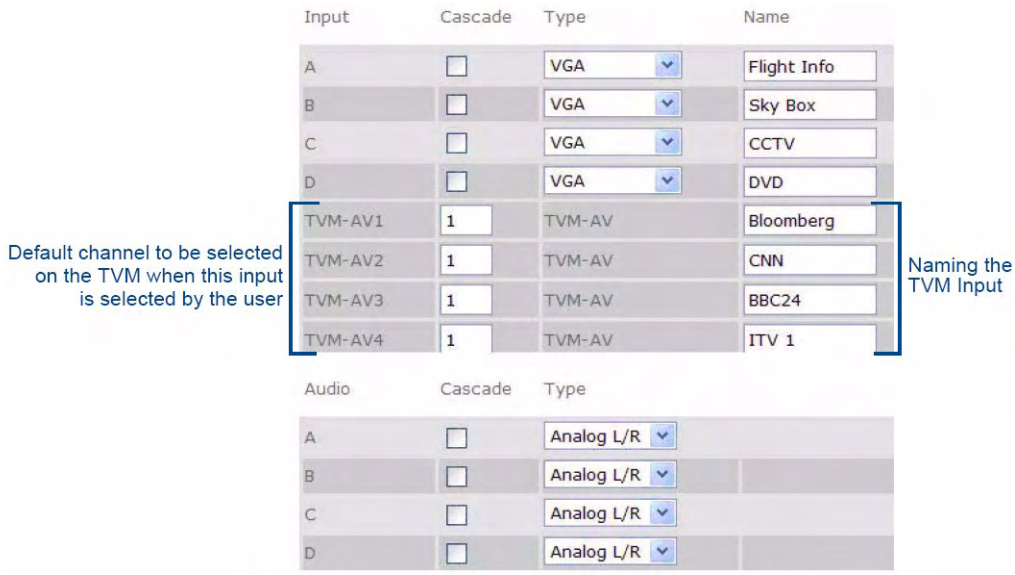

FIG. 22 Configuring TVM inputs for a UDM-1604

5. Configure the default channels for each TVM input. For example if you enter "12" in the text field for TVM-AV1, then every time a UDM user selected TVM-AV1 then they would be initially switched through to TV channel 12. The channel name is manually entered and helps the user recognize this from the input selection drop down box on the status page.

NOTE

If through the user selection page you have enabled pass through (i.e. the ability for the user to send commands through to the TVM hub to change the channel), then you may find that the text no longer reflects channel being viewed. If this feature is to be used, try using a generic channel name such as "TVM port X".

Configuring Audio Types For Inputs

Audio types (Analog L/R or S/PDIF) can be configured for each Input. To configure audio for individual Inputs;

1. Click on **Inputs**.
2. In the audio section of the Inputs option, under the Type column, select the **type** of audio (Analog L/R or S/PDIF) for the relevant input (FIG. 23).

FIG. 23 Configuring audio types for inputs

NOTE

Ensure audio has been connected from the Input to the rear of the hub. Ensure the connections are sound and fixed correctly.

Cascaded Inputs

UDM Hubs can transmit inputs from other UDM Hubs if cascaded together.

1. To display an input from a cascaded Multi Format Video Hub, click on the **checkbox** beneath the Cascade column beside the relevant input.
2. For example if an Administrator selects *Cascade* beside Input A in this Hub, then Input A from the Hub(s) interconnected (cascaded) above will be displayed through Input A of this Hub.

NOTE

The Endeleo cascade cable (UDM-EXP-01) will be connected to the relevant UDM hubs to permit input cascading. Refer to the Advanced Administration & Technical Data section on page 31 *to configure a cascaded system.*

Cascaded Audio

UDM Hubs can transmit audio (and video) from other UDM Hubs if cascaded together. To cascade audio;

1. Click on the **Inputs** option.
2. In the Audio section click on the **checkbox** beneath the Cascade column beside the relevant audio for the correct input (A, B, C or D).

Renaming Output Ports

1. For easier management the system allows the Administrator to rename any of the Output ports.
2. Click on the **Status** option from the left hand side of the screen. The 16 output ports should now be visible (FIG. 24).

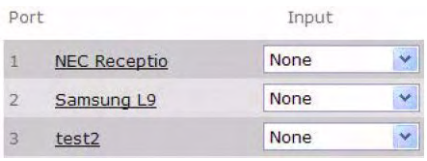

FIG. 24 Output Ports

3. Simply click on the relevant **Port Name** hyperlink on the Status page.
4. The *Port Configuration* page will now be displayed (FIG. 25).

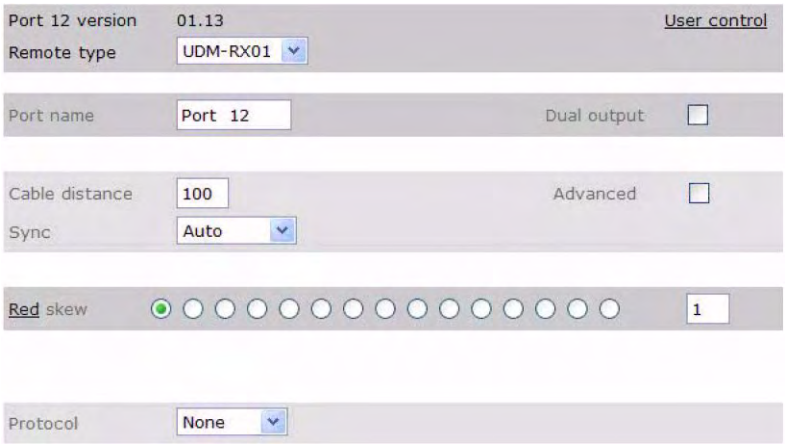

FIG. 25 Configuration options for Output ports

5. **Name** the port appropriately.

Compensating Video at the output ports

Video Compensation Guidelines

Some guidelines on compensating video are listed below, as well as information on compensating video on LCD panels.

The guidelines focus on;

Skew	Endeleo recommends that the video compensation is first adjusted to eliminate any skew, using vertical red / green / blue lines.
Brightness	Once any skew has been eliminated the video should be adjusted for brightness using a grey scale or equivalent test card.
Sharpness	Finally the sharpness of the video should be adjusted eliminating any over or under shoot of the video. Horizontal black and white bars are one useful method of tuning sharpness.

NOTE

LCD screens have a tendency to automatically try and compensate the video, presenting issues when adjusting for skew. Using a CRT monitor to adjust video quality is often the best way around this.

Video Compensation Modes

Two modes of compensation are possible, Basic and Advanced.

Basic Mode

1. Select the *Status* option from the main options.
2. Select the relevant output port **name** hyperlink.
3. In Basic mode the system will automatically set up the brightness and sharpness in relation to the distance entered in the Cable Distance field. Such values are based on a look up table within the hub (FIG. 26).

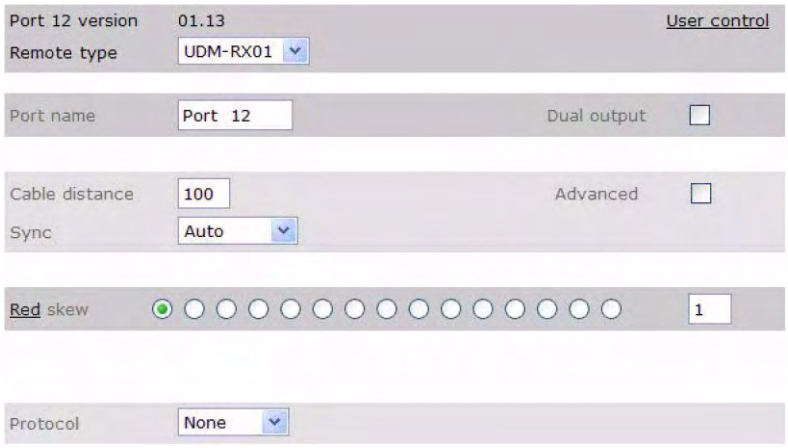

FIG. 26 Basic Video Compensation

4. Fine tuning can be achieved by varying the distance entered.

Advanced Mode

1. Select the **Status** option from the main options.
2. Select the relevant **port name** hyperlink. Click on **Advanced**.
3. In Advanced mode each of the parameters can be adjusted separately;
   - **Bright** (Brightness) adjusts the brightness of the image.
   - **Sharp** (Sharpness) adjusts the sharpness of the image (FIG. 27).

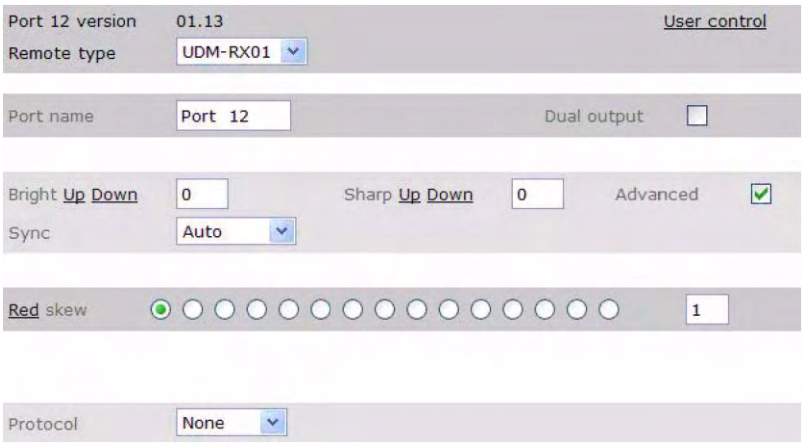

FIG. 27 Advanced Video Compensation

4. To add skew delay into any of the video colors simply click on the appropriate **color hyperlink**.
5. The skew delay rotates through red then green then blue and back to red again – *configure* appropriately. Each radio button is equivalent to *2ns* delay (FIG. 28).

FIG. 28 Cable distance and Skew controls

Compensating Video Using the UDM-RC02 Remote Control

Video can also be compensated using the UDM-RC02 Endeleo Multi-Format IR Remote Control (FG-UDM-RC02).

To compensate video using the UDM-RC02 remote control;

1. Ensure the Endeleo **RX** Infrared bud is attached to the receiver at the IRRX port (FIG. 29).

FIG. 29 UDM-RC02 Endeleo Multi-Format IR Remote Control

2. To enter compensation mode push button **A** then button **B** on the UDM-RX02 remote control.
3. The amber LED at the Cat5 port on the RX unit will start to flash – indicating the RX is in compensation mode.
4. Use the buttons on the RX02 remote control to adjust appropriately the following up or down;
   - Sharpness;
   - Gain and
   - Red, Green and Blue.
5. Once the image displayed is of an acceptable quality push the **Esc** button on the RX02 remote control to exit compensation mode.

WARNING

The compensation settings will be specific to this RX unit and stored internally i.e. if this RX unit is replaced or swapped out the compensation settings will travel with the RX unit. It may therefore be necessary to re-compensate the RX / replacement RX if this RX unit is to be used elsewhere or is being replaced.

Device Configuration and Control

The system allows "centrally located" devices connected to the rear of the UDM Hub e.g. VCR, DVD, DVR or Satellite Decoders to be managed from the user port. This is performed through the *Devices* page.

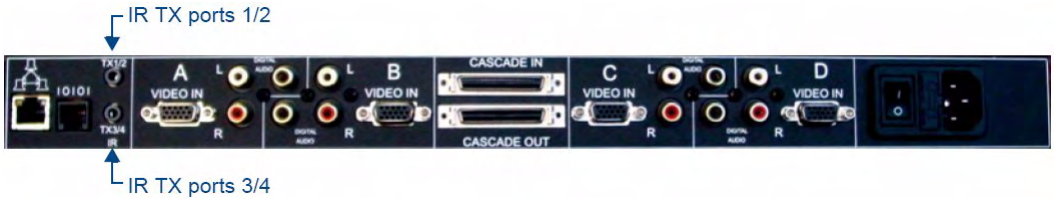

FIG. 30 UDM-1604 rear panel - IR TX ports

NOTE

"Centrally Located "means the device is connected directly to the rear of the UDM hub via the UDM IR ports (Tx1 – Tx4) using an Endeleo IR Tx bud.
The IR Tx bud will then transmit the IR signal from the UDM hub to the device.

An Endeleo IR splitter will be needed for each of the IR ports if using 2 devices per IR port.

- If only one device connected to IR TX port 1/2 it will by default be Device 1.
- If only one device connected to IR TX port 3/4 it will by default be Device 3.

Adding Centrally Located Devices

1. Select the **Devices** option from the options to the left of the screen (FIG. 31).

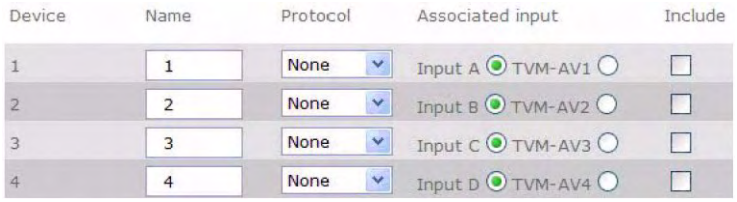

FIG. 31 Devices screen

2. **Name** the Device accordingly e.g. DVD Rack2.

NOTE

Ensure the correct port is selected. Device 1 refers to IR TX1 at the rear of the UDM Hub, Device 4 refers to IR TX4 at the rear of the UDM hub.

3. Configure the Device with the relevant **IR protocol** if appropriate.

   Refer to the *Protocols and IR Learning* section on page 31 for details on creating or learning IR protocols.

4. Configure the Device with the correct **Associated Input** (i.e. where the Device, as an Input type, is physically cabled to on the Hub);
   - If the Device is connected to an input at the rear of the Hub select the relevant associated input (A-D).
   - If the Device is connected to a TVM-AV input at the front of the UDM Hub select the relevant TVM-AV (1-4) associated input.

Issuing controls to a centrally located IR device

NOTE

The UDM hub needs to learn the device's IR protocol i.e. which button on its remote performs which function. Refer to the Protocols and IR Learning section of this manual.

1. The control bar at the bottom of the browser screen enables specific controls to be executed via the browser connection(FIG. 32).

FIG. 32 Command bar for issuing commands to a Device

2. Select the *control(s)* to be performed for this device. Two controls can be issued to a device 1st and 2nd (FIG. 33).

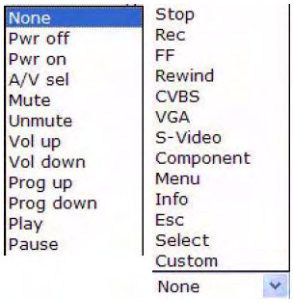

FIG. 33 Optional controls for a device

NOTE

The first command is limited to Power On, Off and A/V Select.

3. Click the tickbox beside the relevant device to select the device to be sent a control. It will highlight in orange.
4. Click on **Send to Included** to send the control to the device.
5. Alternatively such controls can be scheduled to occur later. Refer to the *Scheduling Events* section on page 43 for details.

Custom Controls

Custom Controls permits the Administrator to specify custom IR controls which can sent to the device or display. A list of custom controls and their IR value can be found in Appendix A of this guide.

To issue a custom control;

1. Select the **custom** option within the 2nd list of commands.
2. Type in the **value** of the IR code which is to be sent in the relevant box.
3. Execute the custom control or schedule it to occur later.

Protocols and IR Learning

Overview

Protocols for serial and infrared devices used in the system can be created from the **Protocols** option. These protocols will allow the UDM Hub to control serial and infrared devices connected via the Hub.

For serial devices the following information is key to the successful function of the serial device;

- Serial cable and pinouts;
- Serial settings for correct communication with the device and
- Manufacturer's command strings equivalent to the command to be executed from the UDM Hub.

For IR devices the device's Infrared controls (remote control key presses) will have to be learned by the UDM Hub.

Creating a Serial Protocol

1. Click on the **Protocols** option.
2. If a serial protocol is required click on the downward arrow beside the S*erial Protocol* field. Click on **New**.
3. **Name** the serial protocol appropriately and assign the protocol a **setting** (baud rate, parity etc.).

FIG. 34 Creating a new serial protocol

NOTE

When configuring the serial settings OP means Odd, Parity and EP means Even, Parity.

4. Once the protocol has been named and a setting (baud rate, Parity) configured, click on **Initialise –** this will clear the RX of any pre-loaded serial commands.
5. Select an **Action** to be performed from the *Action* drop down menu e.g. Power off or Power on (FIG. 35).

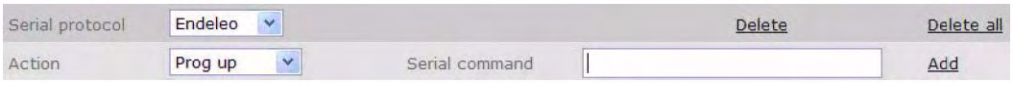

FIG. 35 Creating a serial command for the action

6. Key in the **Serial** command (serial string) equivalent for this action.

NOTE

The serial string which reflects the action has to be accurate for the serial command to work. Consult the Manufacturer's web site or documentation to ascertain the correct string for this serial device.

7. Click on **Add** to create the new protocol.
8. Repeat if necessary for other serial commands which are to be stored under this protocol name.
9. Once completed the protocol can now be assigned to relevant devices.

It is presumed that the serial device connected to the Endeleo RX has the appropriate serial settings as described and the correct serial cable/pinouts configured in order to function correctly with the Endeleo RX unit.

Updating the UDM Receiver With the Serial Protocol

A UDM-RX01/02 Receiver, which will issue the relevant serial commands to the device, must be connected to the relevant port via a Cat5/e/6 cable. Remember the serial commands are stored within the Receiver.

1. Ensure the Serial Protocol and commands have been created previously.
2. Click on the **Status** page.
3. Click on the **port number** hyperlink which the serial device is attached to. (It is the Endeleo RX unit which will issue the serial command over the serial cable connected between the RX unit and the device).
4. Once the port properties become visible click on the arrow to the right of the **Protocol** field.
5. Select the **Serial protocol** which this RX unit will download. This may take a few minutes depending on how many commands are within the protocol.
6. A message will appear saying *"Loading Protocol – Please wait"* once this has disappeared the Serial protocol has been downloaded to the RX device. Commands can now be sent from the Hub Web pages to the serial device.

A new table for this device's Serial control is what is actually being created. When the administrator decides to create further commands particular to this serial device they will be stored within this table e.g power off, power on. If new commands are to be created in future ensure the correct Serial Protocol has been selected before defining new commands to ensure commands are stored in the correct table. There is one protocol/table per UDM Receiver.

Creating and Learning an IR Protocol

Infrared (IR) protocols can be learned by the UDM Hub by using the device's remote control to programme its commands into the UDM Hub. This is performed by using the *Protocols* section of the web pages.

The device's own remote control can still be used locally at the device to control the device.

The UDM Hub can learn between 8 and 25 IR commands depending on the actual command length and protocol used.

IR Learning with a Device's Remote Control

1. Click on the **Protocols** option.
2. Click on the downward arrow beside the IR protocol field. Click on **New**.

NOTE

A new table for this device's remote control is what is actually being created. When the administrator decides to create further commands e.g power off, power on particular to this remote control they will be stored within this table. If new commands are to be created in future ensure the correct IR Protocol has been selected before recording new commands to ensure commands are stored in the correct table. There is one protocol/table per UDM Receiver.

3. Name the Infrared protocol appropriately and click on **Initialise** (FIG. 36).

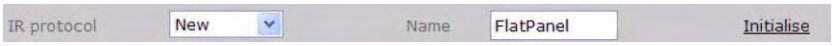

FIG. 36 Creating a new IR protocol (table)

4. The hub prompts for the relevant action which is to be performed (e.g. *vol up)*. Select the relevant action from the Action drop down menu (e.g. *vol up* - FIG. 37*)*.

FIG. 37 Creating a new action for an IR protocol

WARNING

Ensure the device's remote control is pointing to the IR sensor located at the front of the UDM Hub when performing key presses. If not the key presses may not be stored in the UDM Hub.

5. Click on **Step 1**. A message saying *Press key on remote* will appear. Click the key on the device's remote control which will manage the action *vol up* (FIG. 38).

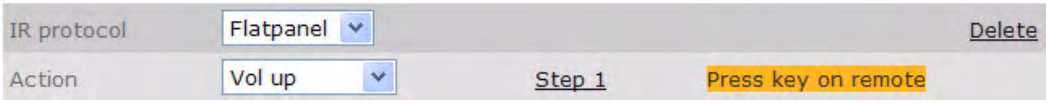

FIG. 38 Configuring the device's remote Step 1

6. Click on **Step 2**. A message saying *Press key on remote* will appear. Click the key on the device's remote control which will manage the action *vol up* (FIG. 39).

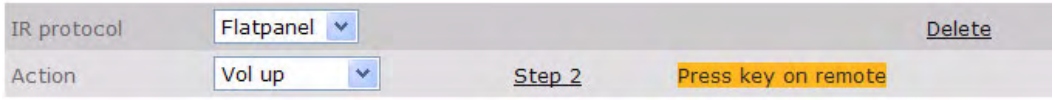

FIG. 39 Configuring the device's remote Step 2

NOTE

The IR learning process requires that the command on the device's remote is learned twice i.e the same remote control command needs to be repeated at Step 2.

Updating the UDM Receiver With the IR Protocol

A UDM-RX01/02 Receiver, which will issue the relevant IR commands to the device, must be connected to the relevant port via a Cat5/e/6 cable. Remember the IR commands are stored within the Receiver.

1. Ensure the Infrared Protocol has been created previously.
2. Click on the **Status** page.
3. Click on the **port number** hyperlink which the device is attached to. It is the Endeleo RX unit which will transmit the IR command to the devices IR interface.
4. Once the port properties become visible click on the arrow to the right of the **Protocol** field.
5. Select the IR protocol which this RX unit will download. This may take a few minutes depending on how many commands are within the table.
6. A message will appear saying *"Loading Protocol – Please wait"* once this has disappeared the IR protocol has been downloaded to the RX device. IR commands can now be sent from the Hub Web pages to the device.

Deleting Protocols

Protocols can be deleted individually by type (Delete) or all protocols can be removed from the UDM Hub (Delete all) i.e. all serial and all Infrared protocols can be deleted using Delete All.

1. Click on the **Protocols** option.
2. To delete a protocol click the **Delete** hyperlink in the serial section to delete a serial protocol or click the **Delete** hyperlink in the Infrared section to delete an infrared protocol.

The last created or currently highlighted serial or infrared protocol will be deleted when using the Delete hyperlink.

Deleting All Protocols (Serial and IR)

All protocols can be deleted from the UDM Hub.

1. Click on the **Protocols** option.
2. To delete all protocols click the **Delete all** hyperlink in the Serial section i.e. the top half of the screen. This deletes **all Serial** and **all Infrared** protocols.

Operating the UDM Hub

Hub Status

All of the system control is handled using the **Status** page. From this page it is possible to control:

- Which input is displayed on which output;
- Send device control messages to the display device and
- Create an event for management via the scheduling engine (FIG. 40).

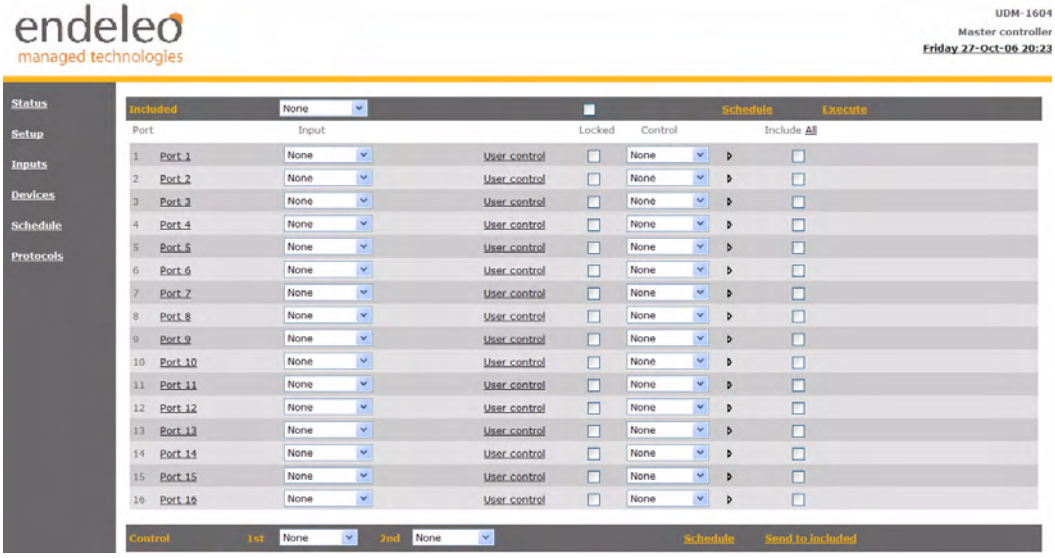

FIG. 40 Main Status page

Selecting Inputs For Display

1. Click on the **Status** option.
2. Each port on the hub has a drop down box, in which will be displayed all of the inputs (configured in the *Inputs* option) available to this particular Port (FIG. 41).

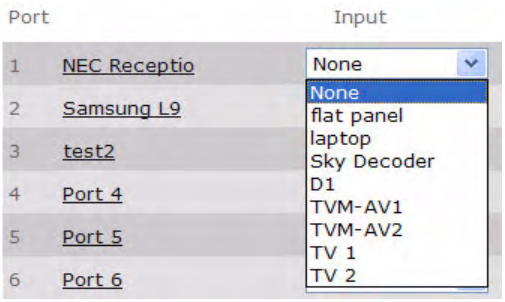

FIG. 41 Inputs available for a port

NOTE

"Inputs" mean inputs directly connected to the rear of the chassis e.g. Inputs A-D, devices connected to IRTx ports 1 – 4 or TVM (Managed TV) ports connected to the front of the UDM Hub at the AV Inputs ports.

3. Select the appropriate **Input** (VGA display, DVD, TV Channel) which this port will display.

Selecting Multiple Inputs For Display

An input can be assigned to multiple ports to save administration time.

1. Click on the **Status** option.
2. To change more than one port to display a particular input, select the **input name** from the drop down list beside the *Included* option. This is located towards the top of the status page on the top toolbar.
3. Select the check boxes (beneath the Include column) beside the relevant ports which are to display the input visible beside *Included*.
4. The selected ports will be highlighted in *Orange*.

NOTE

*The **Include All** link toggles all the channels to be included on or off.*

5. Select the **Execute** hyperlink button at the top of the screen to configure the ports to display the *Included* input (FIG. 42).

FIG. 42 Execute button

6. If configuration changes are complete then deselect the relevant ports by clicking their relevant tickbox. The orange highlight will now disappear.

Changing an Input

The input being displayed at a port can be changed at any time. Simply select the new input to be displayed at this port. To change multiple ports select/include those ports appropriately (FIG. 43).

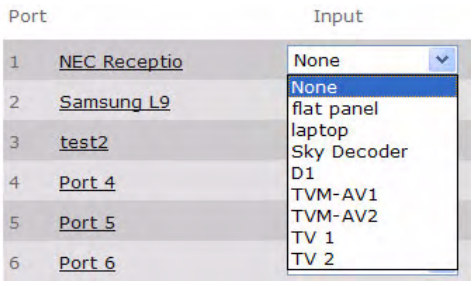

FIG. 43 Changing an Input

User Control

Administrators can issue commands from the UDM Browser Interface. These commands are issued from;

- The toolbar located at the bottom of the web browser to the selected ports;
- The user control drop down options from the Status page for the relevant port or
- The user control section from within a selected port i.e. once a port's hyperlink has been clicked the User Control option will be visible.

NOTE

Schedules are also used to issue commands at a pre-determined time to inputs and devices.

Issuing Commands To a Port

NOTE

Ensure the device's Infrared commands have been learned by the Hub first. Refer to the Protocols and IR Learning section.

Control of the input is performed in a similar way to changing the input to be displayed. A Control or command can either be issued per Input or issued across all or groups of ports.

1. Click on the **Status** option. Ensure the relevant port is known.
2. Click on the *downward arrow* to the right of the **Control** field. Refer to (FIG. 44).

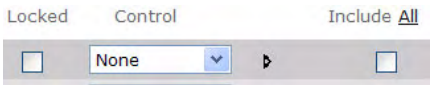

FIG. 44 Selecting a control to be executed at the port(s)

3. A standard list of controls programmed into the web interface will be displayed. **Select** the required control (FIG. 45).

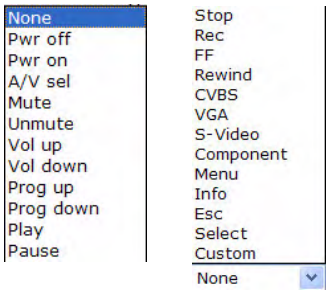

FIG. 45 Standard list of Controls

NOTE

Where a custom control is required type in the IR code for the command. Refer to the Appendix B – Endeleo IR Codes section on page 65.

4. Once selected click on the **Execute** button (FIG. 46). The command will be executed for the relevant port.

FIG. 46 Execute button

Ensure a TX Infrared bud (smaller of the IR buds) is connected to the Endeleo RX unit's IRTX port. Attach it to the Device's IR sensor before issuing a command. This Infrared TX bud is used to transmit the command from the RX unit to the device's infrared sensor

Issuing Commands To Multiple Ports

As with the input selection it is also possible to send multiple control commands to all or selected ports.

1. Click on the **Status** option.
2. Select the *check boxes* for the outputs to be changed (the *Include All* link simply toggles all the channels to be included on or off). The ports will now be highlighted in orange.

Because the control strings are stored in the receiver units, a global command across multiple ports will allow any range of display devices to be controlled simultaneously.

3. Click on the *downward arrow* to the right of a Control field in one of the selected ports. Select the **control** to be executed.
4. Select the **Execute** button (FIG. 46).

Issuing Commands to Centrally Located Devices

It is also possible to control centrally located hardware such as DVD players, using the **Devices** page. Remember an IR-TX bud coming from the rear of the UDM Hub will sit over the Device's IR sensor.

1. Click on the **Devices** option from the main options (FIG. 47).

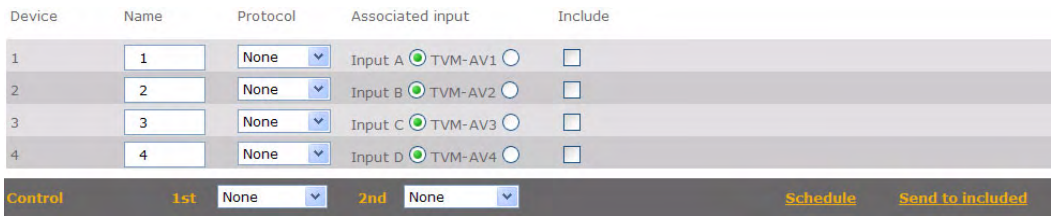

FIG. 47 Controls available for a device

2. First select the *device(s)* you wish to control by clicking on its tick box beneath the *Include* column.
3. From the dark grey toolbar at the bottom of the screen select the **control***(s)* that you wish to send.

2 commands (1st and 2nd, if necessary) can be sent.

4. Now click the **Send to included** hyperlink to issue the control(s).

The Device's commands must have been learned by the UDM hub in order to function. Refer to the Protocols and IR Learning section on page 31.

Assigning a Command to an Endeleo UDM-RC02 Remote Control

NOTE

Ensure the Infrared command which the UDM-RC02 Remote control will issue has been learned by the Hub first. Refer to the Protocols and IR learning section of this manual.

1. Click on the **Status** page. Click the appropriate **Port** name hyperlink.
2. Click on **User Control** at the top right of the screen (FIG. 48).

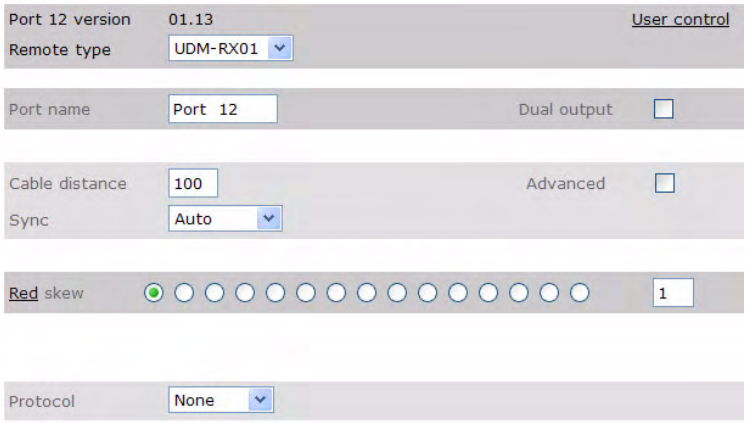

FIG. 48 User Control option

NOTE

From the main status screen click on User Control at the correct port to access the User Control screen also.

3. Look at the keys (0 to F, which represent the keys on the UDM-RC02 Remote Control) to the left of screen.
4. In line with the Key (e.g. key F) move the mouse across to the Control field and select the command from the drop down list which this key (key F) on the UDM-RC02 Remote Control will issue. For Example choose Play (FIG. 49).

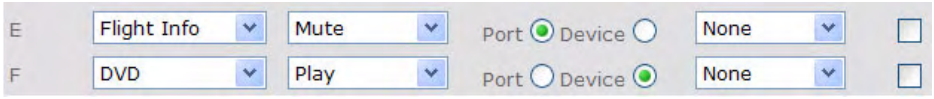

FIG. 49 Assigning Play to key F on the Endeleo remote control

NOTE

Ensure the correct key on the Endeleo Remote RX01 corresponds with the correct command.

5. Now select whether this button (on the remote control) should be associated with the Port (display device) or an actual Device (e.g. a DVD player added to the system as a device) when it is pushed.
6. The Endeleo RX unit will now accept the relevant command from the UDM-RC02 Remote Control i.e. key F on the UDM-RC02 Remote Control will play the device (DVD).

Passthrough Mode (Inputs A – D)

Devices can also be placed into Passthrough Mode. Passthrough Mode allows an Endeleo TVM remote control (or Sky remote control) to be used to control TV channels being viewed through the UDM Hub or devices connected to the UDM Hub e.g. a DVD player.

NOTE

A device e.g. a DVD player can be stopped, paused and started etc. using the TVM remote control or a Sky plus remote control.

The following steps must be taken if Passthrough Mode is to function correctly;

- Device must be added to the system as an Input.
- IR blaster (correct IR port) at the rear of the chassis must be connected to the device.
- Device must be added to the system as a Device and be assigned its learned protocol.
- Port must be configured for Passthrough Mode.

Configuring a Device for Passthrough Mode

The device needs to be added to the system as both an input and as a device.

1. **Cable** the device as an input coming into the rear of the chassis e.g. into Input A as for a normal input.
2. Add the device as an input in the **Inputs** option.
3. **Learn** the device's protocol using IR Learning – refer to the Protocols section and Advanced Administration section of this manual.
4. Add the device into the **Devices** option as normal and assign it its IR protocol.

NOTE

Ensure the relevant IR blaster port is cabled up to the device also e.g. if the device is connected to Input A cable IR port 1 to the device, if Input B cable IR port 2 to the device etc.

5. The device has now been added as an Input (and as a device).

Configuring a Port for Passthrough Mode

To configure a port to access a Device in Passthrough Mode;

1. Select the **Status** option.
2. Once the main Status screen is visible click on **User Control** for the correct port (FIG. 50).

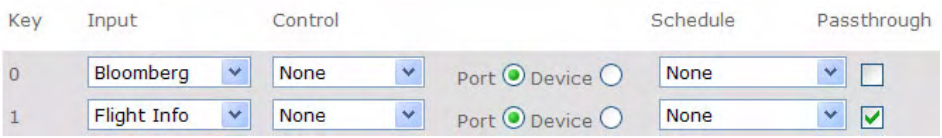

FIG. 50 Placing a port into Passthrough Mode

3. Select the relevant Remote Control from the **Remote Type**, which will be used to put the device into passthrough mode e.g. key 0 on the UDM-RX01 remote control will put the device into passthrough mode.
4. Click on the **Passthrough** checkbox to the right of the key dedicated to putting the RX into Passthrough Mode e.g. key 0 on the remote.
5. The device (Sky box, DVD Player) can now be controlled directly at the RX end.

6. To exit Passthrough Mode press the TV key on the Sky remote or a non-passthrough key on the remote control.

Passthrough Mode (Inputs TVM-AV1 – TVM-AV4)

Similarly a TVM Input (TVM-AV1 – TVM-AV4) can be configured for Passthrough Mode.

Observe the following guidelines;

- Ensure the IR Blaster is connected to the correct IR port at the rear of the UDM Hub. For example IR Port 1 – which will be associated with Device 1 and input TVM-AV1.
- The relevant Device Number is selected to reflect the relevant IR Port (same Device number as IR port on the rear of the UDM Hub).
- Ensure the Device number is associated with the relevant TVM-AV port. For example Device 1 is associated with TVM-AV1.
- The protocol for the Device (for example a Sky box) has been learned. Refer to Advanced Administration in this guide.
- Relevant key has been assigned in User Control to enter Passthrough Mode for the TVM-AV input.
- The TVM-AV Input has been enabled for Passthrough Mode.

If a TVM Hub is directly connected to port TVM-AV1 on the UDM Hub and an IR Blaster connected to IR Port 1 (at the rear of the UDM Hub) is associated with Input A, then only channel changes will be permitted on the TVM Hub – i.e. ***NON****-Passthrough Mode.*

Using Passthrough Mode

Once a device has been configured for Passthrough Mode the relevant remote control is used to control the device.

Press the previously configured key on the relevant remote control (UDM-RX01 or Sky remote control) to enter passthrough mode.

- If accessing a Sky Box through passthrough, click on the Sky button on the Sky remote control. Now use the Sky Remote control as normal. (Press TV on the Sky remote to exit passthrough mode).
- If accessing a DVD player through passthrough, click on the relevant button on the DVD remote control to play, pause, stop eject etc. Use the DVD Remote control as normal.
- If accessing an Endeleo TVM Hub through passthrough, click on the Up or Down channel on the TVM remote control, to toggle between channels.

Exiting Passthrough Mode

To exit passthrough mode, click on any key on the remote control (which accessed passthrough mode) which is not configured as a control enabled key. If accessing a Sky box press **TV** on the Sky remote to exit passthrough mode.

Dual Output

"Dual output" permits a single input to be viewed as 2 separate output types. For example a port could be configured for the Dual Output of VGA and Component video. This means at the RX end the input could be delivered to two separate display devices over the relevant connections at the RX.

To place a port into Dual Output mode;

1. Click on the **Status** screen.
2. Click on the relevant **port** hyperlink.
3. Click on the **Dual Output** checkbox to permit the port to display the single input as 2 separate types at the RX (FIG. 51).

FIG. 51 Enabling Dual Output

Ensure the correct cabling is in place at the RX to accommodate the 2 separate signals.

Locking One or More Ports

Locking a port(s) will prevent any user interaction at that port(s).

1. Click on the **Status** option.
2. To lock any or all output ports to a specific source thus preventing any user control simply select the **Locked** check box beside the relevant port(s) (FIG. 52).

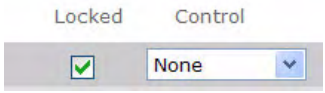

FIG. 52 Locking a port

3. Once selected click on the **Execute** button at the top of the screen. The port is now locked to that display.

*Multiple ports can be locked by clicking on the **Include** check box relevant to the port, then clicking on **Execute** to lock the ports.*

Scheduling Events

Scheduling Events for Inputs and Devices

The hub has an on board clock enabling scheduled events to be created at a predetermined time in the future. Up to 16 events can be scheduled at a time.

Creating a scheduled event requires two actions and uses the global control toolbars at the top (Inputs) and bottom (Commands) of the pages;

- Schedule Link at the **top** of the page is to schedule Inputs, Devices or TVM to be displayed at a particular time and
- The Schedule Link at the **bottom** of the page is to schedule commands to be executed at a particular time.

The event (channel changing, port locking or device control) is selected in the same way as described previously, as are the ports that this is to be applied to.

NOTE

*If **Execute** had been selected, the command would be issued immediately. The Schedule option is used to run the command at a later date.*

Scheduling an Input

Inputs can be scheduled to appear on certain screens if necessary. For example flight information coming in on Input A to ports 1 and 2 can be changed to Train information at a specific time.

1. From the top toolbar, select the **name** of the input which the schedule is to be applied to e.g. Flights (FIG. 53).

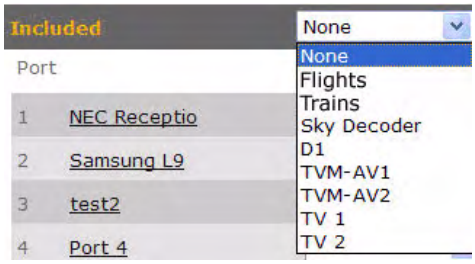

FIG. 53 Selecting an input for a scheduled event

2. Select the **ports** which the input will be displayed on by clicking on the *Include* check box at the relevant ports. The ports are highlighted in orange.
3. Click on the **Schedule** button at the top of the page. The *Schedule* page should now be visible (FIG. 54).

FIG. 54 Main Schedule page

4. The Input(s) and port(s) selected from the Status page will automatically appear in the scheduled event (FIG. 55).

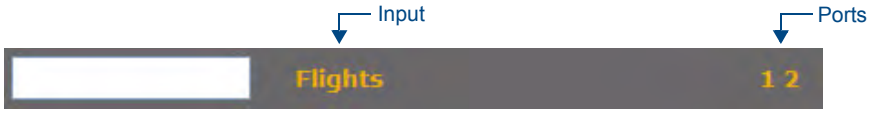

FIG. 55 Input and Ports within schedule

5. **Name** the scheduled event in the field provided (FIG. 56).

FIG. 56 Naming the scheduled event

6. Select the **frequency** (Day, Hour etc.) of the event and the **time** for the event to occur (FIG. 57). Refer to Event Times below to configure the correct time.

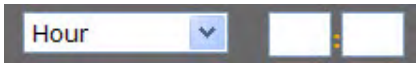

FIG. 57 Selecting the event frequency and time

- *Event Times* specify when an event will occur (FIG. 58).

FIG. 58 Possible event times

- A scheduled event can execute in a number of ways;

Scheduled Events	
Hour	Event happens at a specified time and then every 60 minutes.
Day	Event happens at a specified time and then every 24 hours.
Weekday	Event happens at a specified time and then every 24 hours (Monday through Friday).
Sunday	Event happens every Sunday at specified time.
Monday-Saturday	As with Sunday.

7. Once the frequency of the event has been configured click on **Add** to add the schedule to the list of scheduled events.
   - The event must now be enabled. Click the event's **Enabled** tickbox beneath the Enabled column (FIG. 59). The event will execute at the specified time.

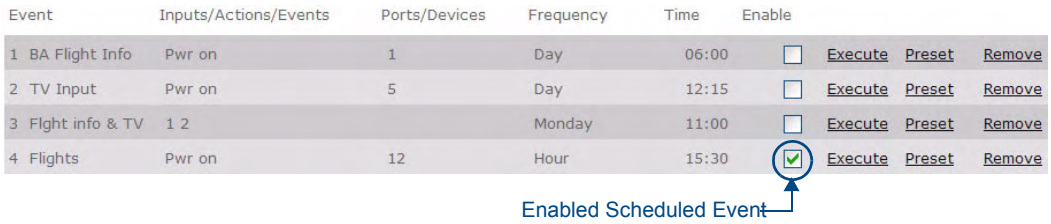

FIG. 59 An enabled schedule

Scheduling an Event(s) for Device(s)

Using the **Devices** page it is also possible to create device control events to happen on a scheduled basis. As with the *Status* page the event is created in the normal manner.

1. Select the control or controls (1st or 2nd) to be executed (FIG. 60) from the grey toolbars at the bottom of the screen.

FIG. 60 Controls to be executed

2. Select or include the device(s) which the control should be sent to by clicking on its tick box. The device(s) will be highlighted in orange.
3. Instead of selecting the *Send to included* hyperlink select the **Schedule** link (at the bottom of the page).
4. Select the **frequency** (Day, Hour etc.) of the event and the **time** for the event to occur. Refer to Event Times below (FIG. 61) to configure the correct time.

FIG. 61 Event Times

- *Event Times* specify when an event will occur (FIG. 62).

FIG. 62 Possible event times

- A scheduled event can execute in a number of ways;

Scheduled Event	
Hour	Event happens at a specified time and then every 60 minutes.
Day	Event happens at a specified time and then every 24 hours.
Weekday	Event happens at a specified time and then every 24 hours (Monday through Friday).
Sunday	Event happens every Sunday at specified time.
Monday-Saturday	As with Sunday.

5. Once the frequency of the event has been configured click on **Add** to add the schedule to the list of scheduled events.

6. The event must now be enabled. Click the event's **Enabled** tickbox beneath the Enabled column (FIG. 63). The event will execute at the specified time.

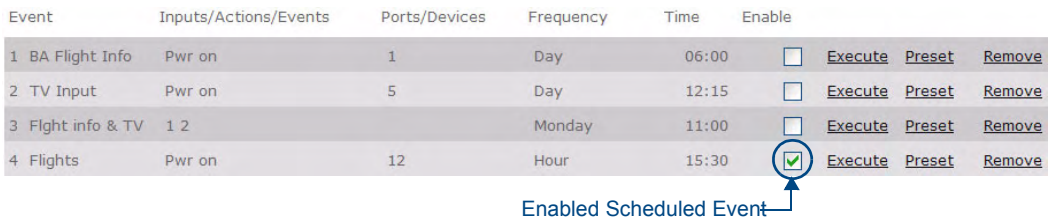

FIG. 63 An enabled schedule

Configuring the UDM-RC02 Remote Control for Scheduling

NOTE

Ensure the relevant schedules have been defined before assigning schedules to the UDM-RC02 Remote Control.

1. Click on the **Status** page. Click the appropriate **Port** name hyperlink and click on **User Control** at the top right of the screen (FIG. 64). Alternatively, click on **User Control** from the main *Status* screen.

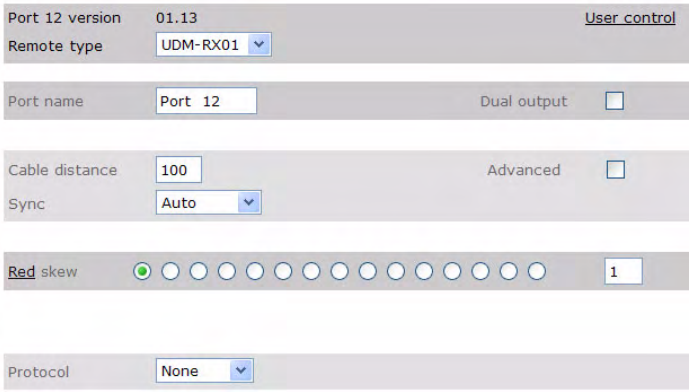

FIG. 64 User Control option in Port Details

2. Look at the keys (0 to F, which represent the keys on the UDM-RC02 Remote Control) to the left of screen.

3. In line with the Key (e.g. key F) move the mouse across to the Schedule field and select the appropriate schedule from the drop down list (FIG. 65) which this key (key F) on the UDM-RC02 Remote Control will issue. For Example choose Flat Panels on.

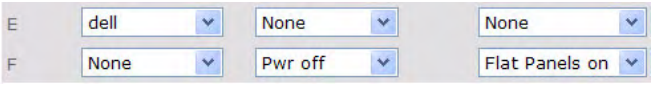

FIG. 65 Assigning a schedule to key F on the Endeleo RX01

NOTE

Ensure the correct key on the UDM-RC02 Remote Control corresponds with the correct schedule.

4. The Endeleo RX unit will now accept the relevant command from the UDM-RC02 Remote Control (i.e. key F on the UDM-RC02 will power on the Flat Panels).

Preset Scheduling

From the **Schedule** page it is possible to create a *Preset* scheduled i.e. events based on schedules already created i.e. combining 2 or more existing events to create a Preset event (FIG. 66).

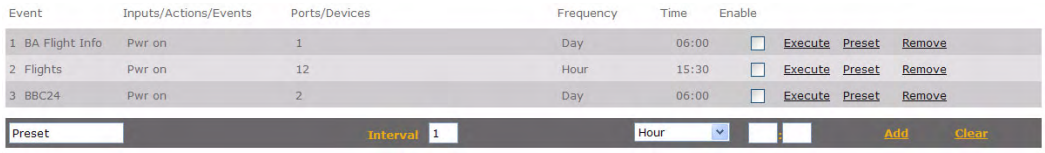

FIG. 66 Main Schedule screen

1. Click on the **Schedule** page. To create a combination event simply click each schedule's **Preset** link (FIG. 67) - the individual schedule numbers appear in the Preset bar at the bottom of the screen.

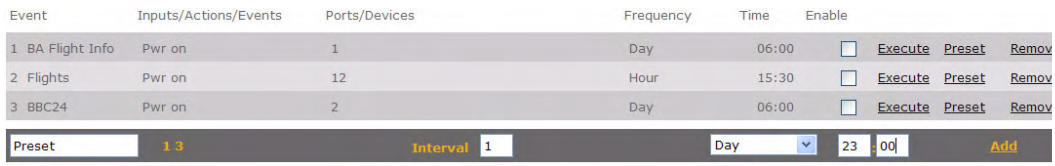

FIG. 67 Selecting individual schedules

2. Define a **frequency / time** for the Preset schedule to happen. This overrides any previously created frequency / times used in the Preset schedule.
3. Assign the Preset schedule a unique **name** by replacing the default text (FIG. 68).

FIG. 68 Naming a Preset schedule

4. If an interval is required between each individual schedule within the Preset schedule, specify a time interval (in minutes) in the interval field.
5. Finally click the **Add** hyperlink button. The Preset event should now appear in the event list.
6. **Enable** the event also by clicking on the tick box beneath the *Enable* column beside the combination event (FIG. 69).

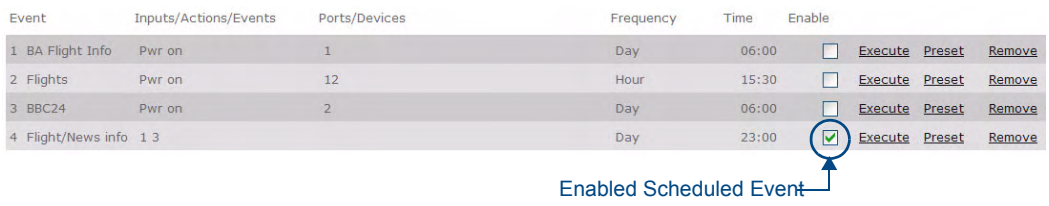

FIG. 69 Enabling a Preset schedule

No tick box appears to the left of the combined event as several combined events can not be added together.

Cascading Hubs

Overview

UDM Hubs can be connected (cascaded) together to increase the number of inputs which can be delivered to the end points. This is known as cascading hubs together.

The Cascade In port and Cascade Out ports will be used when cascading 2 Hubs together.

A cascade cable UDM-EXP-01 will be required to connect Hubs together. This cable can be purchased from AMX, as it is not shipped with the Hub.

Configuring a Master Hub

A Master Hub will have to be configured (to synchronize audio) in any cascaded system. This will normally be the first Hub in the system and should follow a top (Master) to bottom (Slave) configuration. In theory there is no limit to the amount of Hubs cascaded i.e. one Master only but multiple Slaves.

To configure a hub as a Master Hub;

1. Click on the Setup option.
2. Click on the Cascade master option (FIG. 70) to configure the Hub as a Master Hub.

FIG. 70 Configuring a Master Hub

Cascading 2 Hubs

1. To cascade 2 hubs together, ensure the hubs are located within distance of the Endeleo UDM-EXP-01 cascade cable.
2. Attach one end of the UDM-EXP-01 cable to the **Cascade Out** port on the Hub whose video source is to be cascaded to another hub.(FIG. 71)

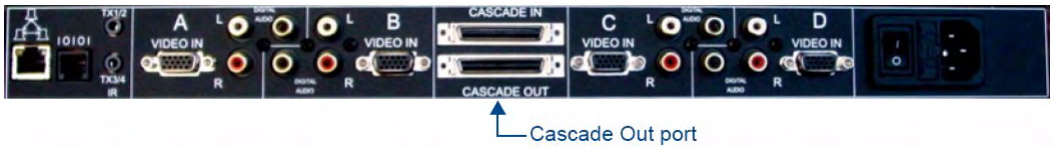

FIG. 71 Hub which will forward (Cascade Out) video source

3. Ensure the connection clips are fixed securely to ensure a good connection on the Cascade Out port.
4. Attach the other end of the UDM-EXP-01 cable to the **Cascade In** port on the Hub (FIG. 72), which will transmit this cascaded video source to a display device (Rx) or indeed to another hub if using more than 2 hubs for cascading.

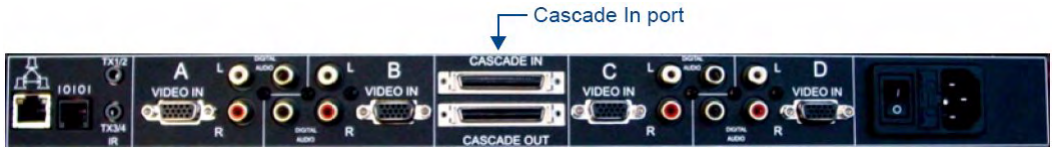

FIG. 72 Hub which will display (Cascade In) video source

5. Ensure the connection clips are fixed securely to ensure a good connection on the Cascade In port. (FIG. 73)

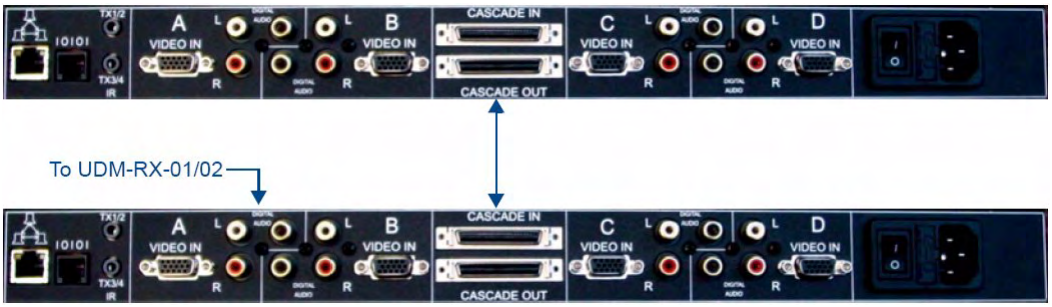

FIG. 73 Two Hubs cascaded together

Cascading three Hubs

1. To cascade 3 hubs together ensure the hubs are located within distance of the Endeleo UDM-EXP-01 cascade cables.
2. Attach one end of the UDM-EXP-01 cable to the **Cascade Out** port on the Hub whose video source is to be cascaded to another hub.
3. Ensure the connection clips are fixed securely to ensure a good connection on the Cascade Out port.
4. Attach the other end of the UDM-EXP-01 cable to the **Cascade In** port on the second Hub, which will transmit this cascaded video source to the third hub.

NOTE

Ensure the connection clips are fixed securely to ensure a good connection on the Cascade In port.

5. Finally, connect the Endeleo UDM-EXP-01 cable to the **Cascade Out** port on the second hub and connect it to the **Cascade In** port on the third Hub. (FIG. 74).

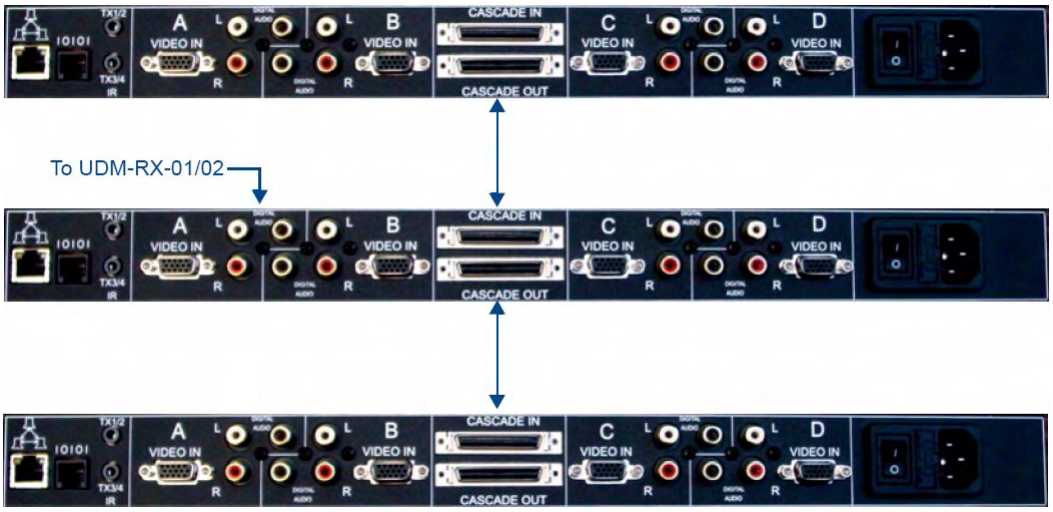

FIG. 74 Three Hubs cascaded together

Software Configuration For Cascading Hubs

Once the cabling has been connected, it is necessary to perform some minor software configuration within the UDM Web Browser.

2 Hub Software Configuration

1. On the hub which will actually display the video source, a check box needs to be activated.
2. Click on the **Inputs** option.
3. The Input on this Hub which corresponds to the Input being cascaded from the other cascaded hub is the one which needs to be configured. For example if Input A is being cascaded from Hub 1 then on Hub 2 in the Inputs section Input A will be configured as Cascade.
4. To configure the cascaded video source to be displayed through this Hub, click on **Cascade** beside the relevant Input, in the example above Input A.

*The **Cascade** option on the corresponding Input which is actually being cascaded does not need to be checked in its Hub. Only the Input which will actually display the video source needs to be configured as Cascade.*

3 Hub Software Configuration

1. On the hub which will actually display the video source a check box needs to be activated.
2. Click on the **Inputs** option.
3. The Input on this Hub which corresponds to the Input being cascaded from the other hubs is the one which needs to be configured. For example if Input A is being cascaded from Hub 1 and Hub 2 in the Inputs section on Hubs 2 and 3 Input A will be configured as Cascade.
4. To configure the cascaded video source to be displayed through these Hubs, click on **Cascade** beside the relevant Input, in the example above Input A in Hubs 2 and 3.

*The **Cascade** option on the corresponding Input which is actually being cascaded does not need to be checked in its Hub. Only the Inputs through which the signal will cascade need to be configured as Cascade i.e. Input A in Hubs 2 and 3.*

Advanced Administration

Overview

System upgrades of the UDM Hub can be performed following consultation with Endeleo support. Upgrade files can be downloaded from the Endeleo web site.

Tools required to perform system upgrades include;

- TFTP client;
- Necessary files (e.g. RX firmware, Hub Firmware, Port Controller, Web Pages, Input Ports, EPLDs)
- Working knowledge of UDM Hub.

NOTE

Due to changes in Web page and hub files since a previous download, loading new web page, configuration, or hub files may require a complete reinstallation of all pertinent firmware. If the latest Web page or hub file version number does not match the UDM's firmware version number, reloading the latest firmware file, configuration file, and web page file may be necessary

Upgrading Firmware and Web Pages On a UDM Hub

The following procedures can also be used to upgrade the Web Page archive on the UDM Hub. Replace filenames appropriately.

Firmware Update

NOTE

Windows XP Pro has a built in TFTP client program. If you are using another operating system, or have an alternate TFTP client, follow the directions of your OS and install TFTP client if necessary. Consult with AMX Technical Support as to the appropriate client for your OS.

Obtain the firmware and Web Pages files and store them in a directory or folder on your PC. For example, create **C:\UDM\Hub**.

1. Run your TFTP client. If using the Windows client, move to step 2.
2. For the Windows TFTP client, start a command session on the PC. Change to the directory where the .ROM files are stored on the PC (e.g. **cd\udm** and **cd\hub).**
3. Type in the following command at the prompt, observing the parameters below:

   TFTP -i [*ip address of UDM Hub*] **PUT** [*filename.ROM*]

   For example, typing in **TFTP -i 192.168.0.96 PUT F03121614300.ROM** will upload the file F03121614300.ROM to the UDM hub with IP address 192.168.0.96.

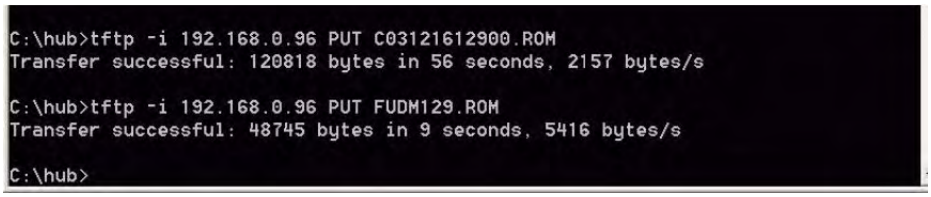
C:\hub>tftp -i 192.168.0.96 PUT C03121612900.ROM
Transfer successful: 120818 bytes in 56 seconds, 2157 bytes/s
C:\hub>tftp -i 192.168.0.96 PUT FUDM129.ROM
Transfer successful: 48745 bytes in 9 seconds, 5416 bytes/s
C:\hub>

FIG. 75 Issuing TFTP commands to the Hub

4. Press **Enter** to execute the command.
5. A successful transfer message should be returned. This may appear after a minute or so, depending on the network environment and the size of the file.

6. The network connection to the hub will be broken as the hub will reset. It is recommended that the hub is **powered off** and then powered on at this point.
7. The command window can be closed, or you may continue on to the Web Interface file.

Web Interface Update

Windows XP Pro has a built in TFTP client program. If you are using another operating system, or have an alternate TFTP client, follow the directions of your OS and install TFTP client if necessary. Consult with AMX Technical Support as to the appropriate client for your OS.

Obtain the firmware and Web Pages files and store them in a directory or folder on your PC. For example, create **C:\UDM\Hub**.

1. Run your TFTP client. If using the Windows client, move to step 2.
2. For the Windows TFTP client, start a command session on the PC. Change to the directory where the .ROM files are stored on the PC:

   e.g. **cd\udn** and **cd\hub**.
3. Type in the following command at the prompt, observing the parameters below;

   TFTP -i [*ip address of UDM Hub*] **PUT** [*filename.ROM*]

   For example, typing in **TFTP -i 192.168.0.96 PUT C03121614300.ROM** will upload the file C03121614300.ROM to the UDM hub with IP address 192.168.0.96.
4. Press **Enter** to execute the command.
5. A successful transfer message should be returned. This may appear after a minute or so, depending on the network environment and the size of the file.
6. The network connection to the hub will be broken as the hub will reset. It is recommended that the hub is **powered off** and then powered on at this point.
7. The command window can be closed, or you may continue on to the Web Interface file.

Upgrading Port Controllers

Windows XP Pro has a built in TFTP client program. If you are using another operating system, or have an alternate TFTP client, follow the directions of your OS and install TFTP client if necessary. Consult with AMX Technical Support as to the appropriate client for your OS.

1. Obtain the Port Controller file and store it in a directory or folder on your PC. For example, create **C:\UDM\Port**.
2. Run your TFTP client. If using the Windows client, move to step 2.
3. Start a command session on the PC. Change to the directory where the .ROM files are stored on the PC:

   e.g. **cd\udm** and **cd\port**
4. Type in the following command at the prompt, observing the parameters below;

   TFTP -i [*IP address*] **PUT** [*filename*]*.*[*portnumber*]

   For example, typing in **TFTP -i 192.168.0.96 PUT R26201610800.001** will upload the file R26201610800 to port 1 on the UDM hub with IP address 192.168.0.96.
5. Push **Enter** to execute the command.
6. Upload the file to any other ports requiring this upgrade by changing the last 3 digits of the command to the relevant port number. For example, enter **TFTP -i 192.168.0.96 PUT R26201610800.002** to upload the file to port 2 on the UDM hub with IP address 192.168.0.96.

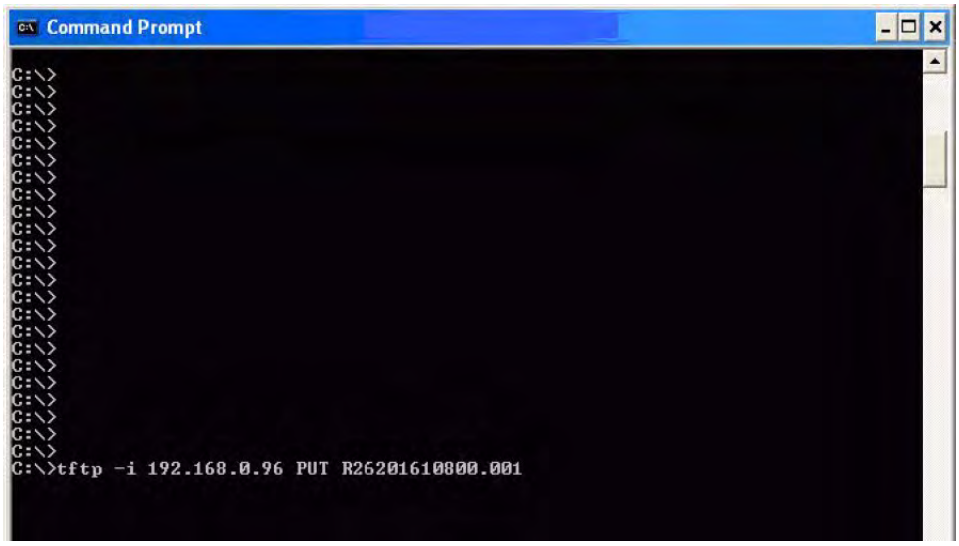

FIG. 76 Issuing TFTP commands to the UDM Receiver via the UDM Hub

7. The command window can be closed.

Copying the Hub Configuration File

Copying the Hub Configuration file permits the Administrator to make backups of key data entered by Administrators, such as Input names, Port names, Devices and the Hub setup.

NOTE

Windows XP Pro has a built in TFTP client program. If you are using another operating system, or have an alternate TFTP client, follow the directions of your OS and install TFTP client if necessary. Consult with AMX Technical Support as to the appropriate client for your OS.

Create a directory or folder on the PC to store the configuration file. For example, create **C:\UDM\Config**.

To backup the Hub Configuration file:

1. Run your TFTP client. If using the Windows client, move to step 2.
2. Start a command session on the PC. Change to the directory where the Hub Configuration file is to be stored on the PC:

   e.g. **cd\udm** and **cd\config**.
3. Type in the following command at the prompt, observing the parameters below:

   TFTP -i [*IP address*] **get hxxxxx.hub**

   Where **hxxxxxx.hub** is the name of the hub configuration file.

   The file name must start with an **h**.

   If the name of the Hub Configuration file is not known, typing in **h** followed by any logical characters will find the file, as only one file beginning with **h** is in the UDM Hub.

   Use a name that will identify the hub configuration file for the project. For example, **hmyproject.hub** is an acceptable name.
4. When complete, close the command window.

Restoring the UDM-1604 Configuration file

1. Run your TFTP client. If using the Windows client, move to step 2.
2. Start a command session on the PC. Change to the directory where the Hub Configuration file is to be stored on the PC:

   e.g. **cd\udm** and **cd\config**.
3. Type in the following command at the prompt, observing the parameters below:

   TFTP -i [*IP address*] **put hxxxxx.hub**

   Where **hxxxxxx.hub** is the name of the hub configuration file.

   Hub configuration file names start with an **h**.

Restoring the hub configuration file can cause the UDM hub web pages to be damaged. Follow the direction for loading the web pages to restore the damaged file.

4. When complete, close the command window.

Loading the Hub Configuration File On the UDM-1604

1. Run your TFTP client. If using the Windows client, move to step 2.
2. Start a command session on the PC. Change to the directory where the .ROM files are stored on the PC:

   e.g. **cd\hub**.
3. Type in the following command at the prompt, observing the parameters below;:

   TFTP –i [*ip address of UDM Hub***] PUT [***filename.ROM***]**.

   For example, typing in **TFTP –i 192.168.0.96 PUT FUDM129.ROM**

   will upload the file **FUDM129.ROM** to the UDM hub with IP address **192.168.0.96**.
4. Once the command has been typed in, push **Enter** to execute the command.
5. Upload the file to any other ports requiring this upgrade by changing the last 3 digits of the command to the relevant port number.

   For example, type **TFTP –i 192.168.0.96 PUT R26201610800.002** to upload the file to port 2 on the UDM hub with IP address 192.168.0.96.
6. The command window can be closed.

Copying Protocols Between UDM Receivers

Once protocols have been learned by the Hub through the Web browser, they will remain on the Hub. Protocols are assigned to individual UDM Receivers (UDM-RX01) by using the Web interface pages.

- The protocols can be transferred between UDM hubs by using the TFTP file transfer utility.
- All learned protocols are stored in the hub in a file starting with either an **i** or an **s**.

Windows XP Pro has a built in TFTP client program. If you are using another operating system, or have an alternate TFTP client, follow the directions of your OS and install TFTP client if necessary. Consult with AMX Technical Support as to the appropriate client for your OS.

Retrieving IR Files From the UDM Ports

1. Run your TFTP client. If using the Windows client, move to step 2.
2. Create a folder on the **C:** drive named **RX**.
3. Browse the new RX folder with your TFTP client.
4. At the command prompt, type the following command to retrieve an IR/Serial file from the UDM Receiver connected to port 1:

   C:\RX\ TFTP –i <*ip address of hub*> **get iname.001** <*enter*>

   Example:

   C:\RX\ TFTP –i 192.168.0.96 get isony.001 <enter>
5. To get a file off the RX connected to port 16 use this command:

   C:\RX\ TFTP –i 192.168.0.96 get isony.016 <enter>

   The file name you create must start with an "**i**" and end in an extension from **.001** to **.016**.
6. To put the file onto another RX unit on the same hub you must first copy the newly created file to all extensions (.001 - .016), or at least the extension of the port to which the RX is connected.

   C:\RX\ copy isony.001 isony.002 <enter>
7. Repeat for other extensions:

   C:\RX\ copy isony.001 isony.003 <enter>

   C:\RX\ copy isony.001 isony.004 <enter>
8. Use the put command to send to the RX units on the other hub ports that need the IR/Serial file.

   C:\RX\ TFTP –i 192.168.0.96 put isony.002 <enter>

   Once an IR protocol has been learned for a specific port, it can simply be copied across to other ports using the TFTP application and the network port. To copy an IR protocol to another port:
9. Create a directory or folder on the PC to store the protocol file. For example, create **C:\UDM\Protocol**
10. You must GET the IR file from the Receiver via the hub. IR files all start with an **I** and use a file extension to indicate number. These could therefore take the form isonymode1.001, IRtable.001 etc.
11. At the command prompt use the following command:

    TFTP –I [IP address of hub] GET irtable.hub

Entering the extension ".hub" will download the hub configuration file, which will capture such data as the input configuration, setup information, input and port names, and the protocol files. The same file is used for serial (s) or IR (i) protocols.

Backing up the Hub Configuration File

1. Run your TFTP client. If using the Windows client, move to step 2.
2. Start a command session on the PC. Change to the directory where the Hub Protocol file is to be stored on the PC:

   e.g. **cd\udm** and **cd\protocol**.
3. Type in the following command at the prompt, observing the parameters below:

   TFTP -i [*IP address*] **get ixxxxx.hub** or **TFTP -i** [*IP address*] **get sxxxxx.hub**

   Where **ixxxxxx.hub** is the name of the hub configuration file.

   The file name must start with an **i** or an **s**.

If the name of the Hub Protocol file is not known typing in i or s followed by any logical characters will find the file, as there is only one protocol file in the UDM Hub.

A file name starting with either i or s will retrieve that file. Use a name that will identify the protocol file for the project. For example: **imyprotocol.hub** is an acceptable name.

4. When complete, close the command window.

Restoring the Hub Configuration File

1. Run your TFTP client. If using the Windows client, move to step 2.
2. Start a command session on the PC. Change to the directory where the Hub Configuration file is to be stored on the PC:

   e.g. **cd\udm** and **cd\protocol**.
3. Type in the following command at the prompt, observing the parameters below:

   TFTP -i [*IP address*] **put ixxxxx.hub**

   -or-

   TFTP -i [*IP address*] **put sxxxxx.hub**

   Where **ixxxxxx.hub** is the name of the hub protocol file.

   All hub protocol file names start with an **i** or **s**.
4. When complete, close the command window.
5. When the protocol file is restored, it will usually automatically associate correctly with the configuration file when it is restored. However, it is wise to check each UDM port using the Web interface to verify the correct protocol is assigned.

Upgrading Input Controllers

*Input Controllers are numbered **.001** to **.004** and identified by the letter **u** before the filename.*

1. Run the TFTP client.
2. Start a command session on the PC and change to the directory where the .ROM files are stored on the PC e.g. **cd\hub**.
3. Type in the following command at the prompt observing the parameters below;

   TFTP –i [*IP address*] **PUT u**[*filename*]**.**[*portnumber*]

   For example typing in **TFTP –i 192.168.0.96 PUT ufilename.001** will upload the Input controller file to Input 1 on the UDM hub with IP address 192.168.0.96.
4. Push **Enter** to execute the command.

Backend Commands

In case of human error the Command Line can be used to perform several Administrative tasks on the multi format video hub.

Changing the Login Password

1. Create a hyperterminal session with the UDM hub using default serial connections.
2. To change the password enter the original password and new password separated by a colon at the login prompt.

   For Example type in **admin:endeleo** at the login prompt, to change the password from *admin* to *endeleo*.
3. **Reset** the Hub. A power off then on is now required.

Obtaining the Hub's IP Address Via the Command Line

1. Type **i** at the command prompt. (FIG. 77) Push **enter**.

```
*
password: ******
- i
IP 192.168.0.96 port 2008
subnet mask 255.255.255.0
IP gateway 0.0.0.0
-
```

FIG. 77 Issuing the i command

Checking Port Details

Port details (resolution, port firmware) can be checked via the command line also.

Multi Format Inputs

The multi format inputs located at the rear of the Hub are numbered 129 through to 132 for administrative purposes.

Multi format inputs	
Input	**Input Number**
A	129
B	130
C	131
D	132

1. To check the input port configuration, type in the following – a question mark followed by the Input Number (129, 130, 131 or 132):

   Example: **? 129**
2. Push **Enter**.
3. The following information will be displayed (FIG. 78);

```
-
- ? 129
port 129 00.06.00
XGA (1024x768)
799 H+ V+
-
```

FIG. 78 Querying a multi format input port

The table below describes typical values returned when using the **?** command on an input port.

Multi-Format Input Configuration	
Value	**Description**
129	Input A
00.06.00	Input Controller Version
XGA	Extended Graphics Array
1024x768	Screen Resolution
799	Vertical lines on screen
H+	Horizontal polarity (+/-)
V+	Vertical polarity (+/-)

User Outputs

1. To view a port's properties, type a question mark before the port number.

   Ensure there is a space between the question mark and the number. (FIG. 79)

   For example **? 1** will display Port 1 properties.

```
- ? 1
port 1 01.11.00
clock master 8406 (E2)
disconnected
port power ON
port number checksum is 1
```

FIG. 79 Querying a port

2. Push **Enter** once the command has been entered.
3. The table below describes typical values returned when using the **?** command on a Hub port.

Value	Description
Port 1	Port number on UDM Hub
01.11.00	Port Controller version
Clock Master 8406	Master (version)
Disconnected / Connected	Connected to RX
Port Power	On or Off
Port Number Checksum	Port in Master or Slave hub

Hub Temperature

To view the Hub's internal temperature;

1. Connect to the UDM Hub using an appropriate tool (e.g. *Hyperterminal*).
2. At the command prompt type in **–h** to view the Hub's internal temperature. (FIG. 80)

```
-
- -h
temp: 50
-
-
```

FIG. 80 Displaying the Hub temperature

Copying IR/Serial Tables

To copy the IR/Serial tables from a UDM hub:

NOTE

Windows XP Pro has a built in TFTP client program. If you are using another operating system, or have an alternate TFTP client, follow the directions of your OS and install TFTP client if necessary. Consult with AMX Technical Support as to the appropriate client for your OS.

1. Run your TFTP client. If using the Windows client, move to step 2.
2. Create a folder on the **C:** drive named **Endeleo**.
3. Open a command prompt (Start, Run, type "cmd" <enter>) and change it to the **C:\Endeleo** directory.
4. Connect the serial cable (RJ12 to DB9) that is supplied with the UDM Hub.
5. Open a Hyperterminal session and connect to the UDM hub (**9600, 8, None,1, None**)
6. Type the following command at the prompt:

   TFTP -i <*ip address of the udm hub*> **get ixxxx.hub** <*enter*>

   Example:

   C:\Endeleo\TFTP -i 192.168.1.201 get iudm.hub <*enter*>

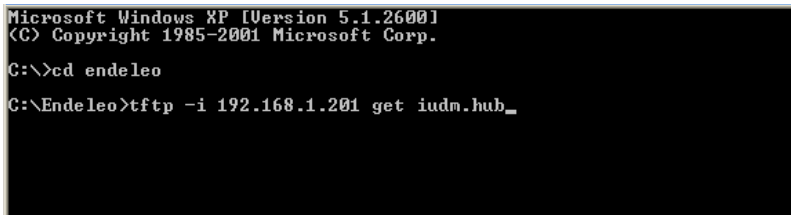
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.
C:\>cd endeleo
C:\Endeleo>tftp -i 192.168.1.201 get iudm.hub

FIG. 81 GET iudm.hub prompt

7. After hitting **Enter**, you should watch the Hyperterminal session window to see the file download from the UDM hub.

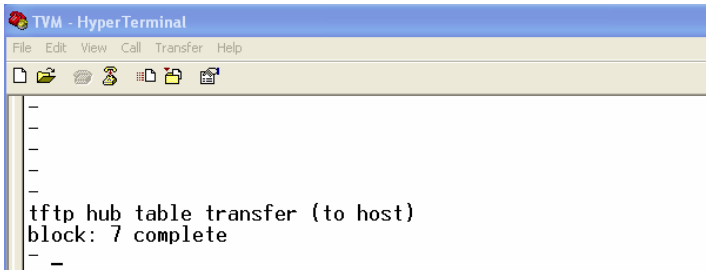

FIG. 82 File download from the UDM hub

8. The transfer is now complete.

Endeleo UDM Receiver commands

Several Receiver-specific commands can be used for information purposes.

Viewing Video Compensation Settings

The *z* command will report the current compensation settings configured within the UDM Receiver.

1. Use Hyperterminal to connect to the Receiver via its serial port.
2. At the command prompt type in **setup**.
3. Once in setup mode to view the compensation settings, type in **z**. (FIG. 83)

```
-
- z
gain 34 sharpness 24 red 1 green 1 blue 1
H+ V+ enabled
- _
```

FIG. 83 Video Compensation Settings

Resetting Video Compensation Settings

The **x** command resets all compensation settings at the Receiver back to default.

1. Use Hyperterminal to connect to the Receiver via its serial port.
2. At the command prompt type in **setup**.
3. Once in setup mode type in **x** to reset the compensation settings if required.

Appendix A: Ascii / Hex Conversion

Overview

Devices are typically controlled either using ascii text strings or using the HEX equivalent.

Control codes can be entered into the Endeleo hardware using ASCII, HEX or a combination of both. (Where certain ASCII codes are difficult to enter (e.g. carriage return).

Char	Hex		Char	Hex		Char	Hex		Char	Hex
(nul)	00		(sp)	20		@	40		`	60
(soh)	01		!	21		A	41		a	61
(stx)	02		"	22		B	42		b	62
(etx)	03		#	23		C	43		c	63
(eot)	04		$	24		D	44		d	64
(enq)	05		%	25		E	45		e	65
(ack)	06		&	26		F	46		f	66
(bel)	07		'	27		G	47		g	67
(bs)	08		(	28		H	48		h	68
(ht)	09		)	29		I	49		I	69
(nl)	0a		*	2a		J	4a		J	6a
(vt)	0b		+	2b		K	4b		k	6b
(np)	0c		,	2c		L	4c		l	6c
(cr)	0d		-	2d		M	4d		m	6d
(so)	0e		.	2e		N	4e		n	6e
(si)	0f		/	2f		O	4f		o	6f
(dle)	10		0	30		P	50		p	70
(dc1)	11		1	31		Q	51		q	71
(dc2)	12		2	32		R	52		r	72
(dc3)	13		3	33		S	53		s	73
(dc4)	14		4	34		T	54		T	74
(nak)	15		5	35		U	55		u	75
(syn)	16		6	36		V	56		v	76
(etb)	17		7	37		W	57		w	77
(can)	18		8	38		X	58		x	78
(em)	19		9	39		Y	59		y	79
(sub)	1a		:	3a		Z	5a		z	7a
(esc)	1b		;	3b		[	5b		{	7b
(fs)	1c		<	3c		\	5c		|	7c
(gs)	1d		=	3d		]	5d		}	7d
(rs)	1e		>	3e		^	5e		~	7e
(us)	1f		?	3f		_	5f		(del)	7f

Appendix B – Endeleo IR Codes

Overview

The following is a list of IR Codes used by Endeleo in learning serial or IR controls for display devices.

Note that several of the items in the following table are not represented in the *Action* drop-down menus for IR and Serial protocols (in the Web Configuration Interface).

For example, “AV SELECT 1" is available in the Action drop-down menu (see “A/V Sel”), and needs no custom code reference. However, a custom command like “AV SELECT 2" would be only be accessed by Custom 31, since this command is not represented in the *Action* drop-down menu options.

IR code	Description	IR code	Description
0-9	Keys 0 to 9	52	Cursor up *
10	Channel up *	53	Cursor down *
11	Channel down *	54	Cursor left *
12	Power Off	55	Cursor right *
13	Mute	56	Esc
14	Volume up	57	Info
15	Volume down	58	Help *
16	Program up	59	Teletext *
17	Program down	60	Services *
18	10+ key (for two digit channel entry)	61	Box office *
20	Channel restore (back) *	62	Interactive *
21	Power On	63	TV guide *
30	A/V select 1	64	Red *
31	A/V select 2 *	65	Green *
32	A/V select 3 *	66	Blue *
40	Device select (DVD/VCR) *	67	Yellow *
41	Enter *	70	Play
42	Clear *	71	Pause
44	TV Input *	72	Stop
45	TV Power *	73	Record
46	Live TV *	74	Fast forward
47	Thumbs up *	75	Rewind
48	Thumbs down *	76	Slow *
50	Menu	80	Select pass through *
51	Select Function	81	Cancel pass through *
		90 -99	Custom 1... through to Custom 10

NOTE

An asterisk in the Description column for any IR Code in this table indicates that the command will require custom code (since the command is not represented in the Actions list.

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